

TECHNICAL DATASHEET

Absolute Encoder AC 58 - CANopen



Clamping flange

- Diagnostic LED
- Programmable: Resolution, Preset, Offset, Direction
- Output of speed, acceleration
- Operation timer
- Option: Display "tico"
- Address and baud rate via interface parameterizable (optional)



CANopen



**TECHNICAL DATA
mechanical**

| | |
|---|--|
| Housing diameter | 58 mm |
| Shaft diameter | 6 mm / 10 mm (Solid shaft) 10 mm / 12 mm (Hub shaft) |
| Flange (Mounting of housing) | Synchro flange, Clamping flange, Tether, Square flange |
| Protection class shaft input (EN 60529) | IP64 or IP67 |
| Protection class housing (EN 60529) | Connection bus cover: IP67 Connection cable or M23 (conin): IP64 (IP67 optional) |
| Shaft load axial / radial | 40 N / 60 N |
| Axial endplay of mounting shaft (hubshaft) | ± 1.5 mm |
| Radial runout of mating shaft (hubshaft) | ± 0.2 mm |
| Max. speed | max. 10 000 rpm (continuous), max. 12 000 rpm (short term) |
| Starting torque typ. ¹ | ≤ 0.01 Nm |
| Moment of inertia | ca. 3.8 x 10 ⁻⁶ kgm ² |
| Vibration resistance (DIN EN 60068-2-6) | 100 m/s ² (10 ... 500 Hz) |
| Shock resistance (DIN EN 60068-2-27) | 1000 m/s ² (6 ms) |
| Operating temperature | -40 °C ... +85 °C |
| Storage temperature | -40 °C ... +85 °C |
| Material shaft | Stainless Steel |
| Material housing | Aluminum |
| Weight | approx. 350 g (ST) / 400 g (MT) |
| Connection | Cable, axial or radial M23 connector (Conin), 12 pole, axial or radial Bus cover with 3 sealed cable exits Bus cover with 2x M23 connectors (Conin), 9 pole Bus cover with 2 sealed cable exits + 1 x M12 connector for "tico" display, 4 pole |

¹ at 20°C

**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 |
| Current w/o load typ. | 220 mA (ST), 250 mA (MT) |
| Resolution singleturn | 10 - 16 Bit |
| Resolution multiturn | 12 Bit |

TECHNICAL DATASHEET

Absolute Encoder AC 58 - CANopen

TECHNICAL DATA
electrical (continued)

| | |
|------------------------------|---|
| 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
Bus cover with 2x M23 connectors (Conin), 9 pole

| M23-PIN (Conin) | Pin insert (IN) | Socket insert (OUT) |
|-----------------|---------------------|---------------------|
| 1 | CAN in + | CAN out + |
| 2 | CAN in - | CAN out- |
| 3 | CAN GND in | CAN GND out |
| 4 | N.C. | N.C. |
| 5 | N.C. | N.C. |
| 6 | N.C. | N.C. |
| 7 | UB in | UB out |
| 8 | 0 V in | 0 V out |
| 9 | N.C. | N.C. |
| screen | screen ¹ | screen ¹ |

¹ screen connected with encoder housing

ELECTRICAL CONNECTIONS
M23 connector (Conin), 12 pole / cable

| M23-Pin (Conin) | TPE cable | Cable pairs | Signal |
|-----------------|-----------|-------------|-------------|
| 7 | yellow | Pair 1 | CAN in+ |
| 2 | green | | CAN in - |
| 4 | pink | Pair 2 | CAN out + |
| 5 | grey | | CAN out - |
| 3 | blue | | CAN GND in |
| 11 | brown | | CAN GND out |
| 12 | white | Pair 3 | UB in |
| 10 | brown | | 0 V in |
| screen | screen | | screen |

ELECTRICAL CONNECTIONS
Bus cover with 3 sealed cable exits

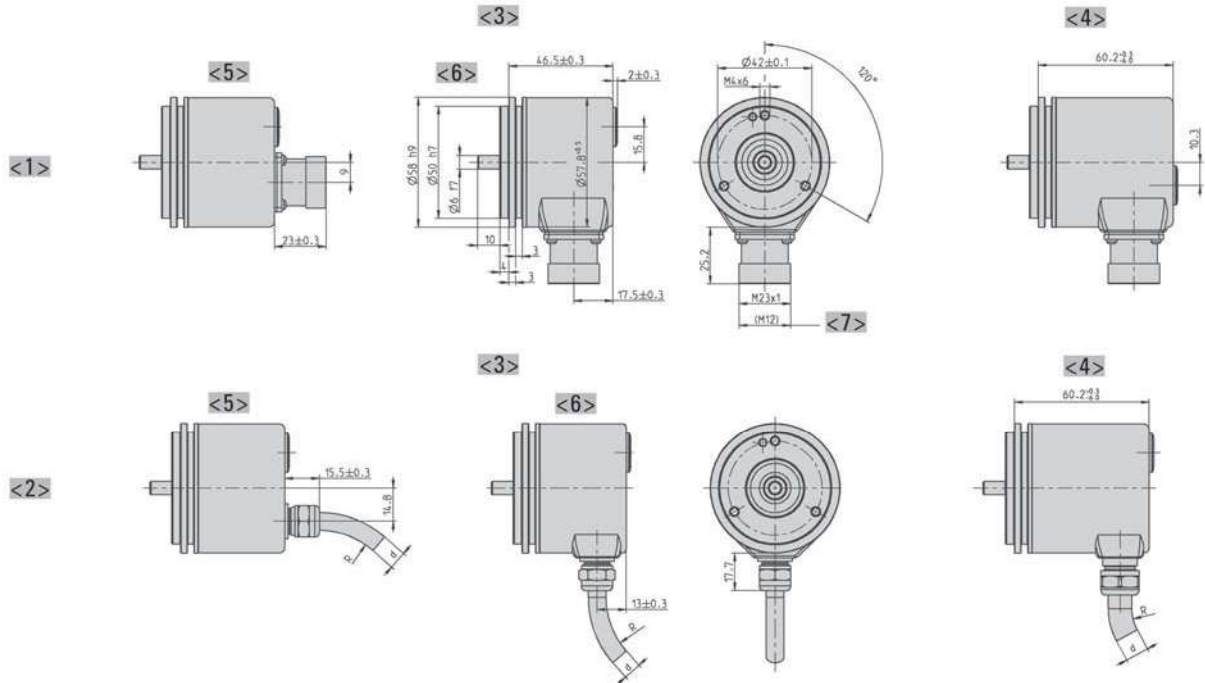
| Connecting block KL 1 (10 pole) | |
|---------------------------------|------------------------|
| No. | Signal name |
| 1 | UB in (DC 10-30V) |
| 2 | 0 V in |
| 3 | CAN in - (dominant L) |
| 4 | CAN in + (dominant H) |
| 5 | CAN GND in |
| 6 | CAN GND out |
| 7 | CAN out + (dominant H) |
| 8 | CAN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

TECHNICAL DATASHEET

Absolute Encoder AC 58 - CANopen

DIMENSIONED DRAWINGS

Synchro flange "S"



- <1> Connection M23 (Conin)
- <2> Connection cable
- <3> Interface: BiSS, SSI, ST-Parallel
- <4> Interface: MT-Parallel (only with cable), Fieldbus, SSI-P
- <5> axial
- <6> radial
- <7> Value in brackets alternative at SSI

- Cable bending radius R for flexible installation $\geq 15 \times$ cable diameter
- Cable bending radius R for fixed installation $\geq 7.5 \times$ cable diameter
- Cable \varnothing d BiSS/SSI/SSI-P: $7,1^{+1,2}$
- Cable \varnothing d ST-P: $7,8^{+0,9}$
- Cable \varnothing d MT-P: $9,3^{+1,3}$
- Cable \varnothing d Fieldbus: $7,1^{+1,2}$

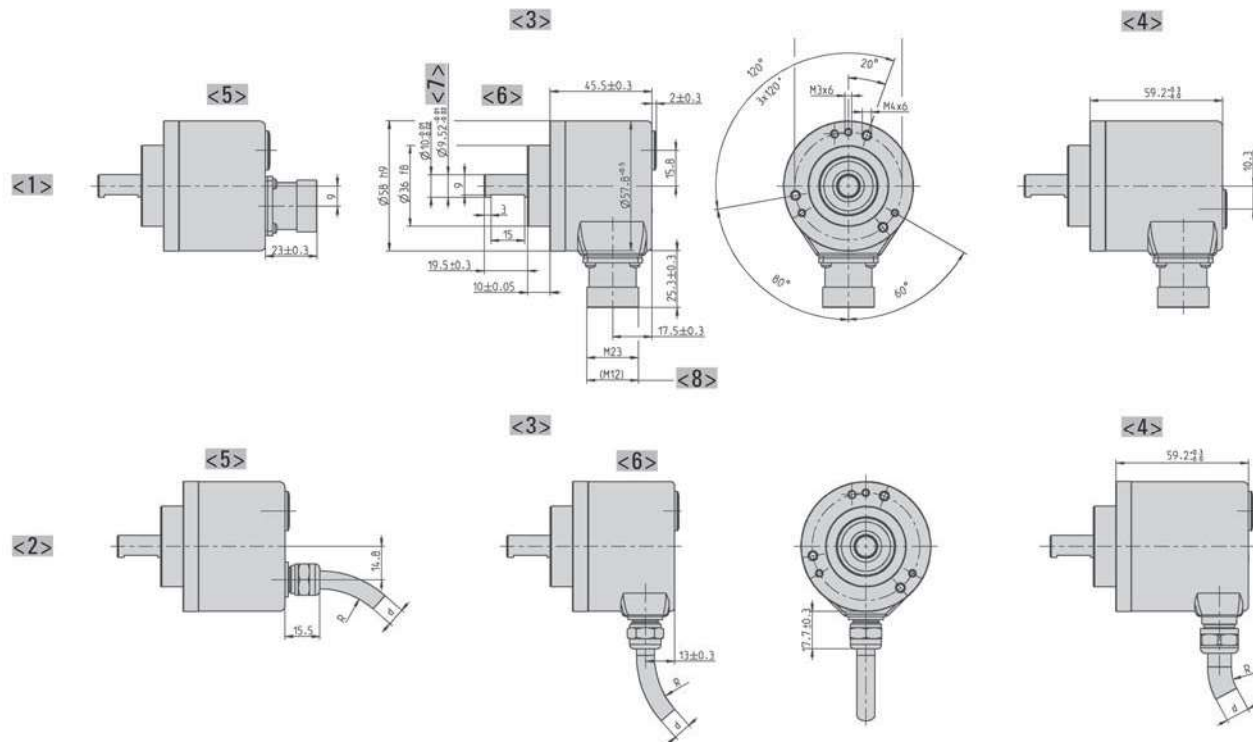
Dimensions in mm

TECHNICAL DATASHEET

Absolute Encoder AC 58 - CANopen

DIMENSIONED DRAWINGS (continued)

Clamping flange "K"



- <1> Connection M23 (Conin)
- <2> Connection cable
- <3> Interface: BiSS, SSI, ST-Parallel
- <4> Interface: MT-Parallel (only with cable), Fieldbus, SSI-P
- <5> axial
- <6> radial
- <7> alternative

- <8> Value in brackets alternative at SSI
- Cable bending radius R for flexible installation $\geq 15 \times$ cable diameter
- Cable bending radius R for fixed installation $\geq 7.5 \times$ cable diameter
- Cable \varnothing d BiSS/SSI/SSI-P: $7,1^{+1,2}$
- Cable \varnothing d ST-P: $7,8^{+0,9}$
- Cable \varnothing d MT-P: $9,3 + 1,3$
- Cable \varnothing d Fieldbus: $7,1^{+1,2}$

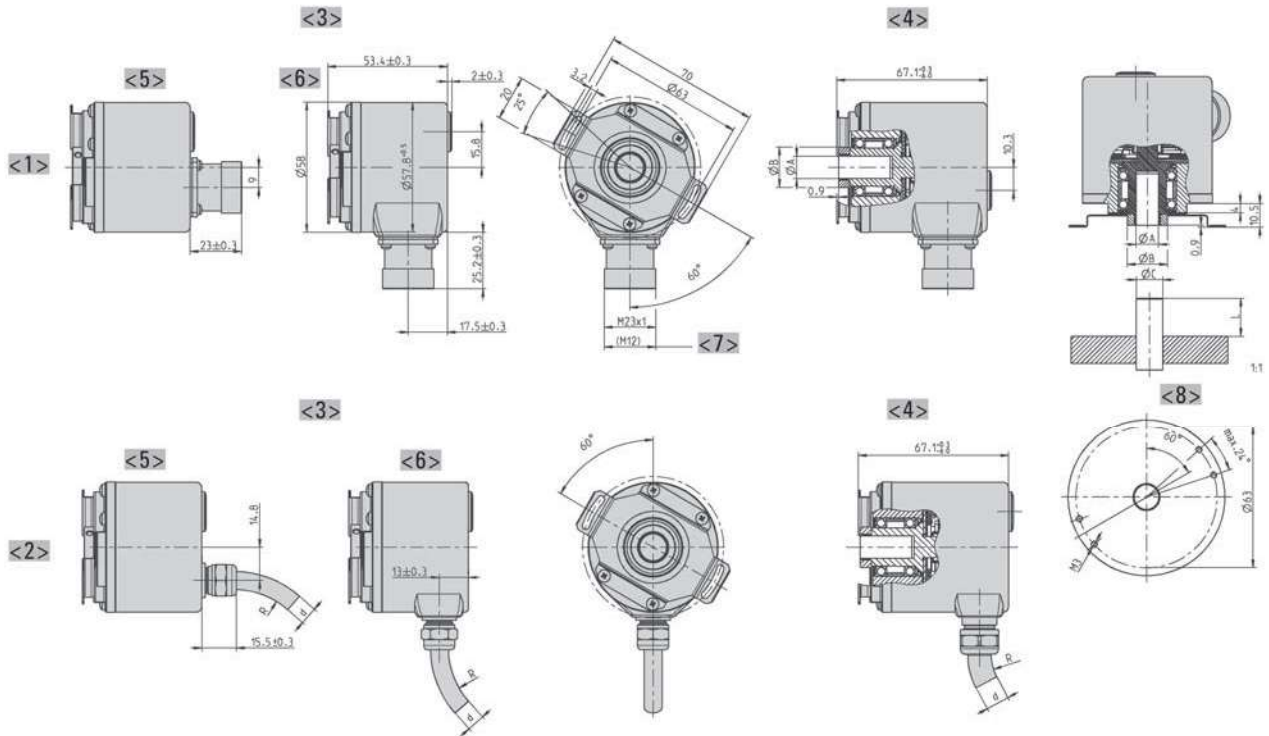
Dimensions in mm

TECHNICAL DATASHEET

Absolute Encoder AC 58 - CANopen

DIMENSIONED DRAWINGS (continued)

Hollow shaft "F"



| | Dim. | | | | Unit |
|----------------------|----------------------|----------------------|------------------------|------------------------|------|
| | <5> | <6> | <7> | <8> | |
| Hollow shaft Ø A | 10 ^{+0.012} | 12 ^{+0.012} | 9,52 ^{-0.012} | 12,7 ^{+0.012} | mm |
| Connecting shaft Ø C | 10 _{g7} | 12 _{g7} | 9,52 _{g7} | 12,7 _{g7} | mm |
| Clamping ring Ø B | 18 | 20 | 18 | 22 | mm |
| L _{min} | 15 | 18 | 15 | 18 | mm |
| L _{max} | 20 | 20 | 20 | 20 | mm |
| Shaft code | "2" | "7" | "6" | "E" | |

L = Inside length of connection shaft

- <1> Connection M23 (Conin)
 - <2> Connection cable
 - <3> Interface: BiSS, SSI, ST-Parallel
 - <4> Interface: MT-Parallel (only with cable), Fieldbus, SSI-P
 - <5> axial
 - <6> radial
 - <7> Value in brackets alternative at SSI
 - <8> Customer side
- Cable bending radius R for flexible installation $\geq 15 \times$ cable diameter
 Cable bending radius R for fixed installation $\geq 7.5 \times$ 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}

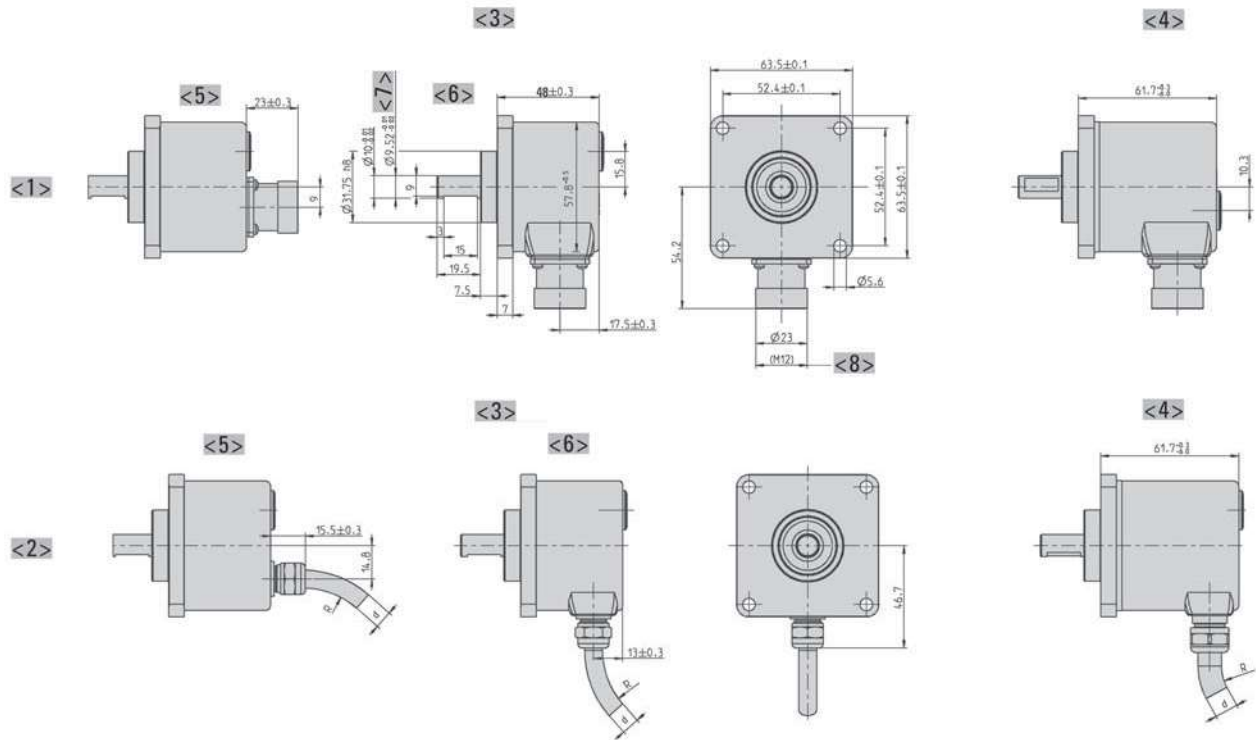
Dimensions in mm

TECHNICAL DATASHEET

Absolute Encoder AC 58 - CANopen

DIMENSIONED DRAWINGS (continued)

Square flange "Q"



<1> Connection M23 (Conin)

<2> Connection cable

<3> Interface: BiSS, SSI, ST-Parallel

<4> Interface: MT-Parallel (only with cable), Fieldbus, SSI-P

<5> axial

<6> radial

<7> alternative

<8> Value in brackets alternative at SSI

Cable bending radius R for flexible installation $\geq 15 \times$ cable diameter

Cable bending radius R for fixed installation $\geq 7.5 \times$ cable diameter

Cable \varnothing d BiSS/SSI/SSI-P: $7,1^{+1,2}$

Cable \varnothing d ST-P: $7,8^{+0,9}$

Cable \varnothing d MT-P: $9,3 + 1,3$

Cable \varnothing d Fieldbus: $7,1^{+1,2}$

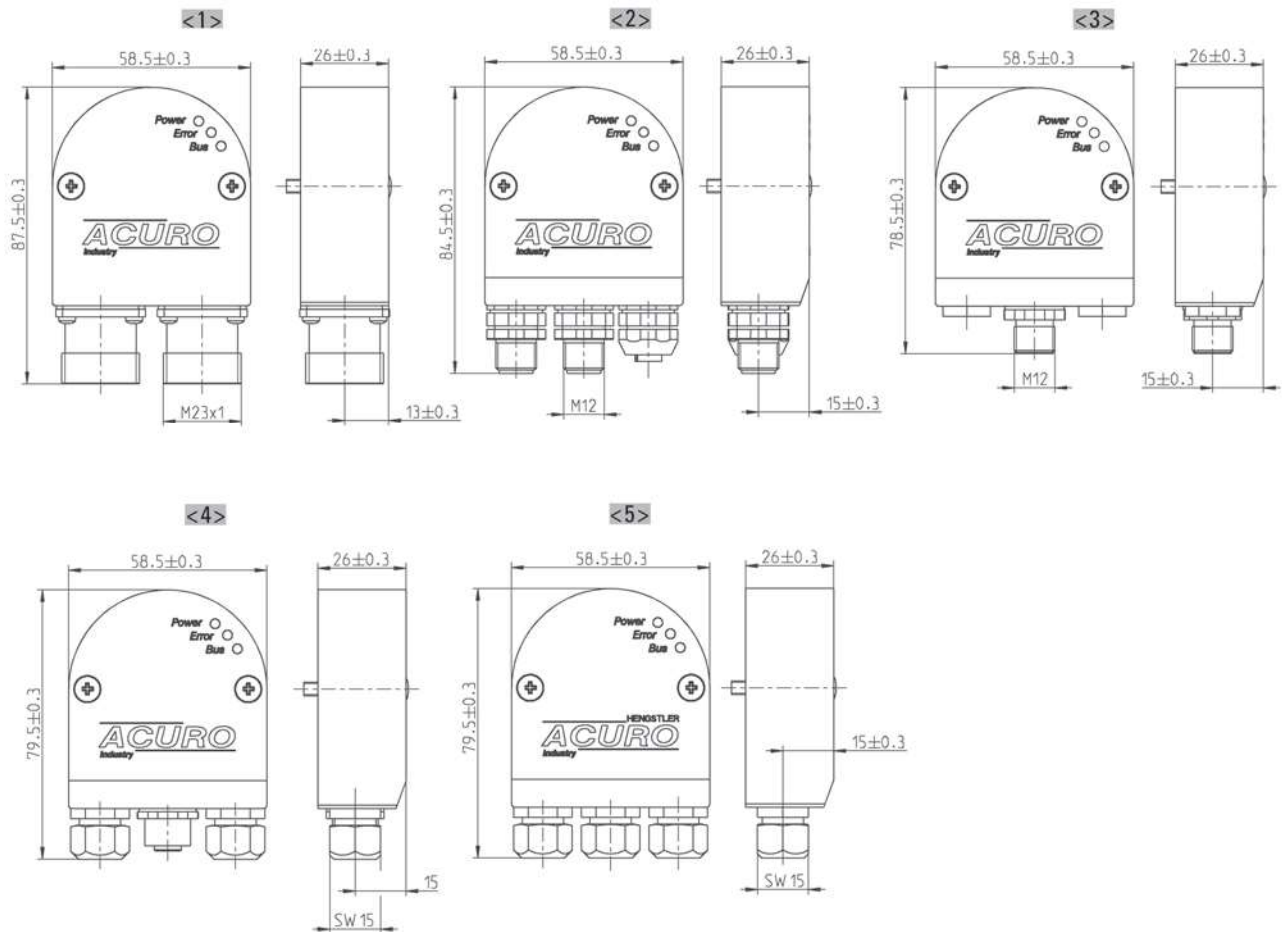
Dimensions in mm

TECHNICAL DATASHEET

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DIMENSIONED DRAWINGS (continued)

Bus covers



- <1> Connection "I"
- <2> Connection "R"
- <3> Connection "S"

- <4> Connection "T"
- <5> Connection "Z"

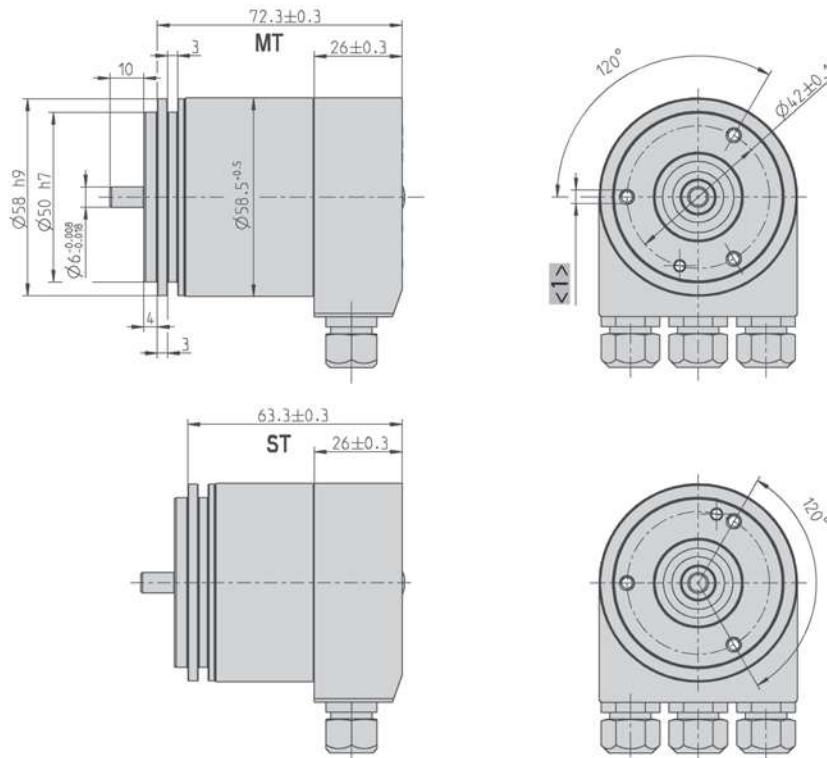
Dimensions in mm

TECHNICAL DATASHEET

Absolute Encoder AC 58 - CANopen

DIMENSIONED DRAWINGS (continued)

Synchro flange "S"



<1> 3xM4 (6 deep)

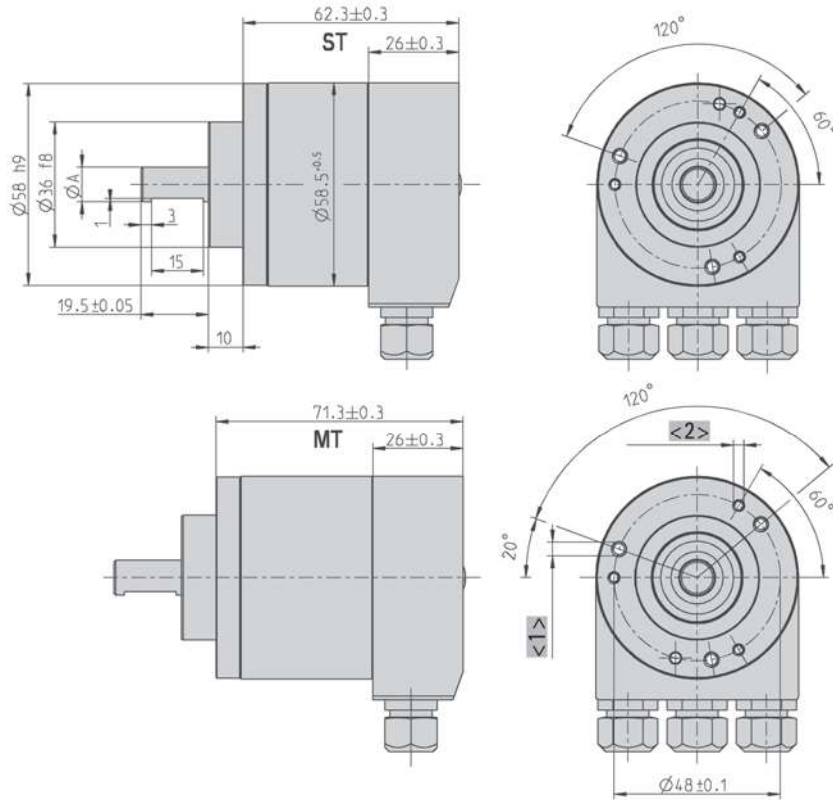
Dimensions in mm

TECHNICAL DATASHEET

Absolute Encoder AC 58 - CANopen

DIMENSIONED DRAWINGS (continued)

Clamping flange "K"



| | Dim. | | Unit |
|------------|---------------------------|-----------------------------|------|
| Shaft Ø A | 10 ^{-0.01/-0.02} | 9.52 ^{-0.01/-0.02} | mm |
| Shaft code | "2" | "6" | |

- <1> 3xM4 (6 deep)
- <2> 3xM3 (6 deep)

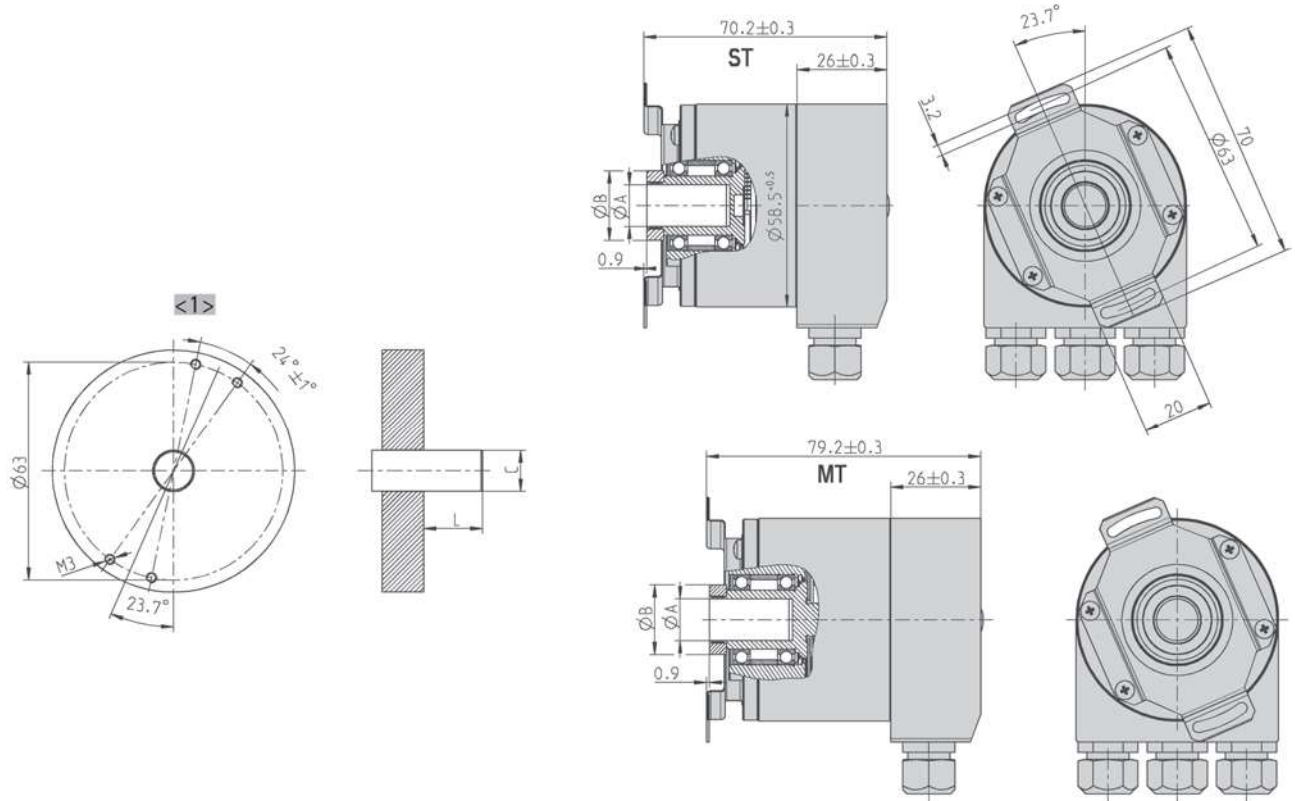
Dimensions in mm

TECHNICAL DATASHEET

Absolute Encoder AC 58 - CANopen

DIMENSIONED DRAWINGS (continued)

Hollow shaft "F"



| | Dim. | | | | Unit |
|----------------------------------|---------------|---------------|-----------------|-----------------|------|
| | 10 | 12 | 9,52 | 12,7 | |
| Hollow shaft $\varnothing A$ | $10^{+0.012}$ | $12^{+0.012}$ | $9,52^{+0.012}$ | $12,7^{+0.012}$ | mm |
| Connecting shaft $\varnothing C$ | 10_{g7} | 12_{g7} | $9,52_{g7}$ | $12,7_{g7}$ | mm |
| Clamping ring $\varnothing B$ | 18 | 20 | 18 | 22 | mm |
| L_{min} | 15 | 18 | 15 | 18 | mm |
| L_{max} | 20 | 20 | 20 | 20 | mm |
| Shaft code | "2" | "7" | "6" | "E" | |

L = Inside length of connection shaft

<1> Customer side

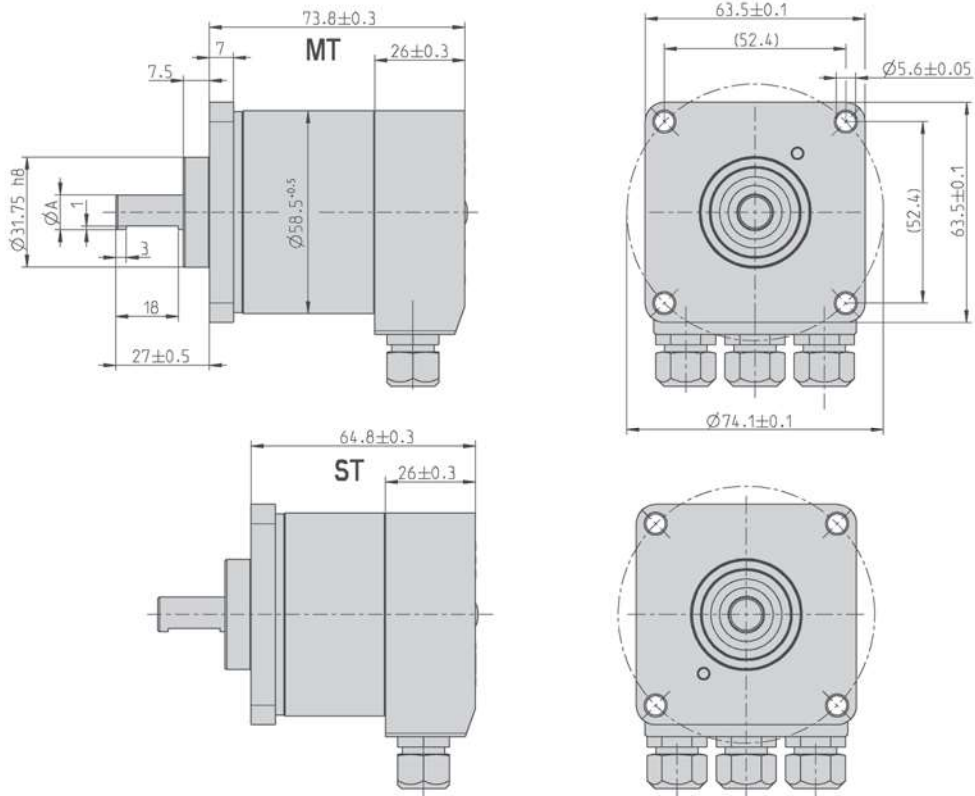
Dimensions in mm

TECHNICAL DATASHEET

Absolute Encoder AC 58 - CANopen

DIMENSIONED DRAWINGS (continued)

Square flange "Q"



| | Dim. | | Unit |
|------------|---------------------------|-----------------------------|------|
| Shaft Ø A | 10 ^{-0.01/-0.02} | 9.52 ^{-0.01/-0.02} | mm |
| Shaft code | "2" | "6" | |

Dimensions in mm

TECHNICAL DATASHEET

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ORDERING INFORMATION

| Type | Resolution | Supply voltage | Flange, Protection, Shaft ¹ | Interface | Connection |
|-----------------------------|--|--------------------------|--|---|--|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| AC58 | 0010 10 Bit ST 0012 12 Bit ST 0013 13 Bit ST 0014 14 Bit ST 0016 16 Bit ST 1212 12 Bit MT + 12 Bit ST 1213 12 Bit MT + 13 Bit ST 1214 12 Bit MT + 14 Bit ST | E DC 10 - 30 V | S.41 Synchro, IP64, 6 mm S.71 Synchro, IP67, 6 mm K.42 Clamping, IP64, 10 mm K.46 Clamping, IP64, 9.52 mm K.72 Clamping, IP67, 10 mm K.76 Clamping, IP67, 9.52 mm F.46 Spring tether, IP64, hubshaft 9.52 mm, mounting with clamping ring front F.42 Spring tether, IP64, hubshaft 10 mm, mounting with clamping ring front F.47 Spring tether, IP64, hubshaft 12 mm, mounting with clamping ring front Q.46 Square, IP64, 9.52 mm Q.42 Square, IP64, 10 mm Q.76 Square, IP67, 9.52 mm Q.72 Square, IP67, 10 mm | OL CANopen OC CANopen - on request - | A Cable, axial B Cable, radial C M23 connector (Conin), 12 pole, axial, cw D M23 connector (Conin), 12 pole, radial, cw G M23 connector (Conin), 12 pole, axial, ccw H M23 connector (Conin), 12 pole, radial, ccw I Bus cover with 2x M23 connector (Conin), 9 pole, radial, cw T Bus cover with 2 sealed cable exits + 1 x M12 connector for "tico" display, 4 pole Z Bus cover with 3 sealed cable exits |
| Manufacturer Part No | Manufacturer Match code | | | | |
| 0566140 | AC58/1213EK.42OLZ | | | | |
| 0566174 | AC58/1212EF.47OLZ | | | | |
| 0566543 | AC58/1214ES.41OLD | | | | |

¹ Protection class IP67 in combination with connection "A" - "H": Version without DIP switches and LED. Setting over fieldbus

Preferably available versions are printed in bold type.

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. For variants with connector on cable end please add cable length code in between. 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 |

Example:

Cable 3 m length: ... B - D0

Cable mit 3 m length and M23 connector, cw: ... B - D0 - I

TECHNICAL DATASHEET

Absolute Encoder AC 58 - CANopen Accessories

FLEXIBLE COUPLINGS



Bellows coupling



Disk coupling



Helical coupling



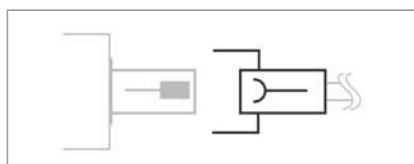
Isolated disk coupling

| | | Ordering code |
|------------------------|----------------|---------------|
| Bellows coupling | 10 mm / 10 mm | 3 520 037 |
| Bellows coupling | 6 mm / 6 mm | 3 520 068 |
| Bellows coupling | 8 mm / 10 mm | 3 520 077 |
| Disk coupling | 6 mm / 6 mm | 0 070 663 |
| Helical coupling 19/28 | 5 mm / 6 mm | 3 520 035 |
| Helical coupling 19/28 | 6 mm / 6 mm | 0 070 653 |
| Helical coupling 25/32 | 6 mm / 9.53 mm | 3 520 052 |
| 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 / 6 mm | 3 520 081 |
| Isolated disk coupling | 6 mm / 10 mm | 3 520 082 |
| Isolated disk coupling | 10 mm / 10 mm | 3 520 088 |

MOUNTING

| | Ordering code |
|---|---------------|
| Clamping eccentric, For M4 (set of three) | 1 522 300 |
| Clamping eccentric for synchro flange, d6,5 for M3 (set of three) | 0 070 655 |
| Fastening angle (plastic), for clamping flange RI 58, AC 58 (fastening material included) | 1 522 329 |
| Mounting bell (plastic), for synchro flange RI 58, AC 58 (clamping eccentric and fastening material included) | 1 522 330 |
| Square flange adapter 58 x 58 mm, for clamping flange RI 58, AC 58 (fastening material included) | 1 522 326 |
| Square flange adapter 80 x 80 mm, for clamping flange RI 58, AC 58 (fastening material included) | 1 522 327 |
| Synchro flange adapter , for clamping flange RI 58, AC 58 (fastening material included) | 1 522 328 |
| Torque support | 1 531 188 |

CONNECTORS

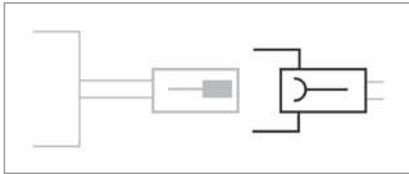


| Connector (socket) matching with encoder connector | Ordering code |
|---|---------------|
| M23 (Conin), 12 pole, PG9, cw, mating connector for connection C/D/-I | 3 539 202 |

TECHNICAL DATASHEET

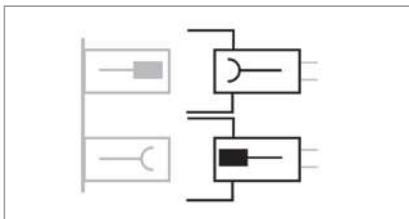
Absolute Encoder AC 58 - CANopen Accessories

CONNECTORS



| Connector (socket) matching with encoder cable with connector | Ordering code |
|--|---------------|
| M23 (Conin), 12 pole, ccw, mating connector for connection G/H/-D/-H | 3 539 229 |

CONNECTORS



| Connector for connecting bus cover with 2x M23 | Ordering code |
|--|---------------|
| M23 (Conin), 9 pole, PG9, cw, pins | 3 539 293 |
| M23 (Conin), 9 pole, PG9, cw, socket | 3 539 294 |

CONNECTING CABLES

| Cable not made up with connectors | Ordering code |
|-----------------------------------|--------------------|
| TPE cable, 12-core + screen | 3 280 220 + length |

DISPLAYS

| | Ordering code |
|--|---------------|
| "Tico" display for connection T (Caution: Neutralizes ohmic isolation) | 0 731 205 |
| Connection cable bus cover (connection T) to "tico", 1.5 m | 3 539 575 |

TECHNICAL MANUALS

| | Ordering code |
|---------------------------|-------------------------|
| Technical manual, English | 2 565 255 (or homepage) |
| Technical manual, German | 2 565 090 (or homepage) |

SOFTWARE

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