

Incremental encoders

Standard optical

Sendix 5000 / 5020 (shaft / hollow shaft)

Push-Pull / RS422 / Open collector



Due to their sturdy bearing construction in Safety-Lock™ Design, the Sendix 5000 and 5020 offer high resistance against vibration and installation errors.

The rugged housing, high protection level of up to IP67, as well as the wide temperature range of -40°C up to +85°C, make this product range the perfect encoder for all applications.



Safety-Lock™



High rotational speed



Temperature range
-40°C... +85°C



High protection level
IP



High shaft load capacity



Shock / vibration resistant



Magnetic field proof



Short-circuit proof



Reverse polarity protection



Optical sensor

Robust performance

- Increased resistance against vibrations and tolerance of installation errors, elimination of machine downtime and repairs thanks to sturdy bearing construction in "Safety-Lock™ Design".
- Ensures highest safety against field breakdowns and is thus suitable also for outside use thanks to its resistant die-cast housing and protection up to IP67.
- Undetachable clamping ring on hollow shaft encoders.
- Wide temperature range, -40°C ... +85°C.

NEW:

- Higher shock resistance.
- Higher vibration resistance.
- IP66 and IP67 protection level in one version.

Many variants

- Suitable connection variant for every specific case: cable connection, M12, M23, MIL and Sub-D connector.
- Reliable mounting in a wide variety of installation situations: comprehensive and proven fixing possibilities.
- Compatible with all US and European standards.
- Max. 5000 pulses per revolution.

NEW:

- Double number of standard pulse numbers.
- Variants with connector fitted in the cable – for error-free electrical connection to your control.
- Additional connector variants (M12 / 5-pin, Sub-D).
- Additional standard cable lengths.

Technology in detail

Robust Safety-Lock™ bearing structure

Cables with fitted connector

Undetachable clamping ring

Slotted clamping ring + slotted shaft

Tangential cable outlet



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|-------------------------|--|---|

| | | | | | | | | | |
|----------------------|---------------|----------------|-------------|----------|-----------|-----------|---|---|---|
| Order code | 8.5000 | .XXXXX. | XXXX | P | XX | XX | | | |
| Shaft version | Type | a | b | c | d | e | f | g | h |

| | |
|---|--|
| <p>a Flange</p> <p>5 = synchro flange, IP66/IP67 \varnothing 50.8 mm [2"] 6 = synchro flange, IP65 \varnothing 50.8 mm [2"] 7 = clamping flange, IP66/IP67 \varnothing 58 mm [2.28"] 8 = clamping flange, IP65 \varnothing 58 mm [2.28"] A = synchro flange, IP66/IP67 \varnothing 58 mm [2.28"] B = synchro flange, IP65 \varnothing 58 mm [2.28"] C = square flange, IP66/IP67 \square 63.5 mm [2.5"] D = square flange, IP65 \square 63.5 mm [2.5"] G = Euroflansch, IP66/IP67 \varnothing 115 mm [4.53"]¹⁾</p> <hr/> <p>1 = servo flange, IP66/IP67 \varnothing 50.8 mm [2"] 2 = servo flange, IP65 \varnothing 50.8 mm [2"] 3 = square flange, IP66/IP67 \square 52.3 mm [2.06"] 4 = square flange, IP65 \square 52.3 mm [2.06"] E = servo flange, IP66/IP67 \varnothing 63.5 mm [2.5"] F = servo flange, IP65 \varnothing 63.5 mm [2.5"]</p> <p>b Shaft ($\varnothing \times L$), with flat</p> <p>1 = \varnothing 6 x 10 mm [0.24 x 0.39"] 2 = \varnothing 1/4 x 5/8" (6.35 x 15.875 mm) 6 = \varnothing 8 x 15 mm [0.32 x 0.59"] 3 = \varnothing 10 x 20 mm [0.39 x 0.79"] 4 = \varnothing 3/8 x 5/8" (9.5 x 15.875 mm) B = \varnothing 11 x 33 mm [0.43 x 1.30"], with feather key shaft slot²⁾ 5 = \varnothing 12 x 20 mm [0.47 x 0.79"]</p> <hr/> <p>7 = \varnothing 1/4 x 7/8" 8 = \varnothing 3/8 x 7/8"</p> <p>c Output circuit / power supply</p> <p>4 = RS422 (with inverted signal) / 5 V DC 1 = RS422 (with inverted signal) / 5 ... 30 V DC 2 = Push-Pull (7272 compatible with inverted signal) / 5 ... 30 V DC 5 = Push-Pull (with inverted signal) / 10 ... 30 V DC</p> <hr/> <p>3 = Open collector (with inverted signal) / 5 ... 30 V DC 8 = Push-Pull (7272 compatible with inverted signal), without capacitor / 5 ... 30 V DC³⁾</p> | <p>d Type of connection – cable</p> <p>1 = axial cable, 1 m [3.28'] PVC A = axial cable, special length PVC *) 2 = radial cable, 1 m [3.28'] PVC B = radial cable, special length PVC *)</p> <p style="text-align: center;"><i>Type of connection – connector</i></p> <p>P = axial M12 connector, 5-pin⁴⁾ R = radial M12 connector, 5-pin⁴⁾ 3 = axial M12 connector, 8-pin 4 = radial M12 connector, 8-pin 7 = axial M23 connector, 12-pin 8 = radial M23 connector, 12-pin Y = radial MIL connector, 10-pin W = radial MIL connector, 7-pin⁴⁾</p> <hr/> <p>9 = radial MIL connector, 6-pin⁴⁾</p> <p style="text-align: center;"><i>Type of connection – connector with cable</i></p> <p>L = radial cable with M12 connector, 8-pin, special length PVC *) M = radial cable with M23 connector, 12-pin, special length PVC *) N = radial cable with Sub-D connector, 9-pin, special length PVC *)</p> <p>*) Available special lengths (connection types A, B, L, M, N): 0.3, 0.5, 1, 2, 3, 4, 5, 6, 8, 10, 12, 15, 20 m [0.98, 1.64, 3.28, 6.56, 9.84, 13.12, 16.40, 19.69, 26.25, 32.80, 39.37, 49.21, 65.62'] order code expansion .XXXX = length in dm ex.: 8.5000.814A.1024.0030 (for cable length 3 m)</p> <p>e Pulse rate</p> <p>1, 2, 4, 5, 10, 12, 14, 20, 25, 28, 30, 32, 36, 50, 60, 64, 80, 100, 120, 125, 150, 180, 200, 240, 250, 256, 300, 342, 360, 375, 400, 500, 512, 600, 625, 720, 800, 900, 1000, 1024, 1200, 1250, 1500, 1800, 2000, 2048, 2500, 3000, 3600, 4000, 4096, 5000 (e.g. 100 pulses => 0100)</p> <p>f Special output signal formats</p> <p>00 = standard output other = see page 8</p> <p>g Capacitor</p> <p>0 = standard A = no bypass capacitor (vector motor) (only valide with output circuits 1, 3, 4, 5)</p> <p>h Special connector pin configuration</p> <p>0 = standard wiring other = see page 6</p> <p style="text-align: center;"><i>Optional on request</i></p> <p>- other pulse rates - Ex 2/22⁵⁾ - surface protection salt spray</p> <p style="text-align: center;"><i>Salt spray tested as standard type (deliverable as from 1 unit)</i></p> <p style="text-align: center;"> 8.5000.73X4.XXXX-C</p> |
|---|--|

1) Only in conjunction with shaft type B.
 2) Only in conjunction with flange type G.
 3) Attention: no CE types!
 4) Without inverted signal.
 5) For the cable connection type, cable material PUR.

Incremental encoders

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|-------------------------|--|---|
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| Mounting accessory for shaft encoders | | Order no. |
|---------------------------------------|--|-------------------------|
| Coupling | bellows coupling \varnothing 19 mm [0.75"] for shaft 6 mm [0.24"] | 8.0000.1102.0606 |
| | bellows coupling \varnothing 19 mm [0.75"] for shaft 10 mm [0.39"] | 8.0000.1102.1010 |

| Mounting accessory for hollow shaft encoders | | Dimensions in mm [inch] | Order no. |
|---|--------------------|-------------------------|-------------------------|
| Cylindrical pin, long | with fixing thread | | 8.0010.4700.0000 |
| for flange with spring element (flange type 1 + 2) | | | |

| Isolation / adapter inserts for hollow shaft encoders order code 8.5020.X8XX.XXXX | | D1 | Isolation insert |
|--|--|---------------|-------------------------|
| Thermal and electrical isolation of the encoders (Temperature range -40 ... +115°C [-40°F ... +239°F]) | | 6 mm [0.24"] | 8.0010.4021.0000 |
| Isolation inserts prevent currents from passing through the encoder bearings. These currents can occur when using inverter controlled three-phase or AC vector motors and considerably shorten the service life of the encoder bearings. In addition the encoder is thermally isolated as the plastic does not transfer the heat to the encoder. | | 8 mm [0.32"] | 8.0010.4020.0000 |
| | | 10 mm [0.39"] | 8.0010.4023.0000 |
| | | 12 mm [0.47"] | 8.0010.4025.0000 |
| | | 1/4" | 8.0010.4022.0000 |
| | | 3/8" | 8.0010.4024.0000 |
| | | 1/2" | 8.0010.4026.0000 |

| Connection technology | | Order no. |
|--|---|-----------------------------|
| Cordset, pre-assembled | M12 female connector with coupling nut, 8-pin 2 m [6.56"] PVC cable | 05.00.6041.8211.002M |
| | M23 female connector with coupling nut, 12-pin 2 m [6.56"] PVC cable | 8.0000.6901.0002 |
| Connector, self-assembly (straight) | M12 female connector with coupling nut, 8-pin | 05.CMB 8181-0 |
| | M23 female connector with coupling nut, 12-pin | 8.0000.5012.0000 |
| | MIL female connector with coupling nut, 10-pin | 8.0000.5062.0000 |

Further accessories can be found in the accessories section or in the accessories area of our website at: www.kuebler.com/accessories.
Additional connectors can be found in the connection technology section or in the connection technology area of our website at: www.kuebler.com/connection_technology.

Technical data

| Mechanical characteristics | | |
|--|----------------------|--|
| Maximum speed | IP65 | 12000 min ⁻¹ 6000 min ⁻¹ (continuous) |
| | IP66/IP67 | 6000 min ⁻¹ 3000 min ⁻¹ (continuous) |
| Mass moment of inertia | shaft version | approx. 1.8 x 10 ⁻⁶ kgm ² |
| | hollow shaft version | approx. 6 x 10 ⁻⁶ kgm ² |
| Starting torque at 20°C [68°F] | IP65 | < 0.01 Nm |
| | IP66/IP67 | < 0.05 Nm |
| Shaft load capacity | radial | 100 N |
| | axial | 50 N |
| Weight | | approx. 0.4 kg [14.11 oz] |
| Protection acc. to EN 60529 | without shaft seal | IP65 |
| | with shaft seal | IP66/IP67 |
| Working temperature range | | -40°C ¹⁾ ... +85°C [-40°F ¹⁾ ... +185°F] |
| Material | shaft | stainless steel |
| Shock resistance acc. to EN 60068-2-27 | | 3000 m/s ² , 6 ms ²⁾ |
| Vibration resistance acc. to EN 60068-2-6 | | 300 m/s ² , 10 ... 2000 Hz ³⁾ |

1) With connector: -40°C [-40°F], cable fixed: -30°C [-22°F], cable moved: -20°C [-4°F].
2) For MIL connectors: 2500 m/s²
3) For MIL connectors: 100 m/s²

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|-------------------------|--|---|

| Electrical characteristics | | | | | | |
|--|---|---------------------------|------------------------------|--------------------------------|--|------------------------------|
| Output circuit | RS422 (TTL compatible) | RS422 (TTL compatible) | Push-Pull | Push-Pull (7272 compatible) | Push-Pull (7272 compatible, without capacitor) | Open collector (7273) |
| Order code | 1 | 4 | 5, 7 | 2 | 8 | 3 |
| Power supply | 5 ... 30 V DC | 5 V DC (±5 %) | 10 ... 30 V DC | 5 ... 30 V DC | 5 ... 30 V DC | 5 ... 30 V DC |
| Power consumption (no load) | typ. 40 mA max. 90 mA | typ. 40 mA max. 90 mA | typ. 50 mA max. 100 mA | typ. 50 mA max. 100 mA | typ. 50 mA max. 100 mA | 100 mA |
| Permissible load / channel | max. +/- 20 mA | max. +/- 20 mA | max. +/- 20 mA | max. +/- 20 mA | max. +/- 20 mA | +/- 20 mA sink at 30 V DC |
| Pulse frequency | max. 300 kHz | max. 300 kHz | max. 300 kHz | max. 300 kHz ¹⁾ | max. 300 kHz | max. 300 kHz |
| Signal level | HIGH min. 2.5 V LOW max. 0.5 V | min. 2.5 V max. 0.5 V | min +V - 1.0 V max. 0.5 V | min. +V - 2.0 V max. 0.5 V | min. +V - 2.0 V max. 0.5 V | |
| Rising edge time t_r | max. 200 ns | max. 200 ns | max. 1 µs | max. 1 µs | max. 1 µs | |
| Falling edge time t_f | max. 200 ns | max. 200 ns | max. 1 µs | max. 1 µs | max. 1 µs | |
| Short circuit proof outputs ²⁾ | yes ³⁾ | yes ³⁾ | yes | yes | yes ³⁾ | yes |
| Reverse polarity protection of the power supply | yes | no | yes | no | no | no |
| UL approval | file 224618 | | | | | |
| CE compliant acc. to | EMC guideline 2014/30/EC RoHS guideline 2011/65/EU | | | | | |

Terminal assignment – Standard wiring

| Output circuit | Type of connection | Cable (isolate unused wires individually before initial start-up) | | | | | | | | | | | | |
|------------------|------------------------------|---|-----|----|---------|-----------|-----------|------------------|-----------|-----------|------------------|-----------|------------------|--|
| 1, 2, 3, 4, 5, 8 | 5000: 1, 2, A, B | Signal: | 0 V | +V | 0 Vsens | +Vsens | A | \bar{A} | B | \bar{B} | 0 | $\bar{0}$ | \perp | |
| | 5020: 1, A, E, F | Cable colour: | WH | BN | GY PK | RD BU | GN | YE | GY | PK | BU | RD | shield | |
| 1, 2, 3, 4, 5, 8 | 5000: P, R | M12 connector, 5-pin | | | | | | | | | | | | |
| | 5020: R | Signal: | 0 V | +V | A | B | 0 | \perp | | | | | | |
| | | Pin: | 1 | 2 | 3 | 4 | 5 | PH ¹⁾ | | | | | | |
| 1, 2, 3, 4, 5, 8 | 5000: 3, 4, L | M12 connector, 8-pin | | | | | | | | | | | | |
| | 5020: 2, H ²⁾ , L | Signal: | 0 V | +V | A | \bar{A} | B | \bar{B} | 0 | $\bar{0}$ | \perp | | | |
| | | Pin: | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | PH ⁴⁾ | | | |
| 1, 2, 3, 4, 5, 8 | 5000: 7, 8, M | M23 connector, 12-pin | | | | | | | | | | | | |
| | 5020: 4, M | Signal: | 0 V | +V | 0 Vsens | +Vsens | A | \bar{A} | B | \bar{B} | 0 | $\bar{0}$ | \perp | |
| | | Pin: | 10 | 12 | 11 | 2 | 5 | 6 | 8 | 1 | 3 | 4 | PH ⁴⁾ | |
| 1, 2, 3, 4, 5, 8 | 5000: Y | MIL connector, 10-pin | | | | | | | | | | | | |
| | 5020: 7 | Signal: | 0 V | +V | +Vsens | A | \bar{A} | B | \bar{B} | 0 | $\bar{0}$ | \perp | | |
| | | Pin: | F | D | E | A | G | B | H | C | I | J | | |
| 1, 3, 4, 5, 8 | 5000: W | MIL connector, 7-pin | | | | | | | | | | | | |
| | 5020: 6 | Signal: | 0 V | +V | +Vsens | A | B | 0 | \perp | | | | | |
| | | Pin: | F | D | E | A | B | C | G | | | | | |
| 1, 3, 4, 5, 8 | 5000: 9 | MIL connector, 6-pin | | | | | | | | | | | | |
| | | Signal: | 0 V | +V | A | B | 0 | \perp | | | | | | |
| | | Pin: | A | B | E | D | C | | | | | | | |
| 1, 2, 3, 4, 5, 8 | 5000: N | Sub-D connector, 9-pin | | | | | | | | | | | | |
| | 5020: N | Signal: | 0 V | +V | A | \bar{A} | B | \bar{B} | 0 | $\bar{0}$ | \perp | | | |
| | | Pin: | 9 | 5 | 1 | 6 | 2 | 7 | 3 | 8 | PH ⁴⁾ | | | |

1) Max. recommended cable length 30 m [98.43'].

2) If power supply correctly applied.

3) Only one channel allowed to be shorted-out:

at +V= 5 V DC, short-circuit to channel, 0 V, or +V is permitted.

at +V= 5 ... 30 V DC, short-circuit to channel or 0 V is permitted.

4) PH = shield is attached to connector housing.

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|-------------------------|--|---|

Terminal assignment – Special connector pin configuration

| Order code ^h | Output circuit | Type of connection | M12 connector, 8-pin | | | | | | | | | |
|-------------------------|------------------|------------------------------|----------------------|-----|----|---|-----------|---|-----------|---|-----------|------------------|
| 7 | 1, 2, 3, 4, 5, 8 | 5000: 3, 4, L | Signal: | 0 V | +V | A | \bar{A} | B | \bar{B} | 0 | $\bar{0}$ | \perp |
| | | 5020: 2, H ²⁾ , L | Pin: | 7 | 2 | 1 | 3 | 4 | 5 | 6 | 8 | PH ¹⁾ |

| Order code ^h | Output circuit | Type of connection | MIL connector, 6-pin | | | | | | |
|-------------------------|----------------|--------------------|----------------------|------|----|---|---|---|---------|
| 1 | 1, 3, 4, 8 | 5000: 9 | Signal: | 0 V | +V | A | B | 0 | \perp |
| | | | Pin: | A, F | B | D | E | C | |

| Order code ^h | Output circuit | Type of connection | MIL connector, 7-pin | | | | | | | |
|-------------------------|----------------|--------------------|----------------------|-----|----|---|-----------|---|-----------|---------|
| 4 | 1, 3, 4, 8 | 5000: W | Signal: | 0 V | +V | A | \bar{A} | B | \bar{B} | \perp |
| | | 5020: 6 | Pin: | F | D | A | C | B | E | G |

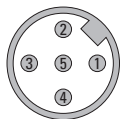
| Order code ^h | Output circuit | Type of connection | MIL connector, 10-pin | | | | | | | | | |
|-------------------------|------------------|--------------------|-----------------------|-----|----|---|-----------|---|-----------|---|-----------|---------|
| 6 | 1, 2, 3, 4, 5, 8 | 5000: Y | Signal: | 0 V | +V | A | \bar{A} | B | \bar{B} | 0 | $\bar{0}$ | \perp |
| | | 5020: 7 | Pin: | F | D | A | H | B | I | C | J | G |

| Order code ^h | Output circuit | Type of connection | M12 connector, 5-pin | | | | | | |
|-------------------------|------------------|--------------------|----------------------|-----|----|---|---|---|------------------|
| 9 | 1, 2, 3, 4, 5, 8 | 5000: P, R | Signal: | 0 V | +V | A | B | 0 | \perp |
| | | 5020: R | Pin: | 3 | 1 | 4 | 2 | 5 | PH ¹⁾ |

+V: Encoder power supply +V DC
 0 V: Encoder power supply ground GND (0 V)
 0 V_{sens} / +V_{sens}: Using the sensor outputs of the encoder, the voltage present can be measured and if necessary increased accordingly.

A, \bar{A} : Incremental output channel A
 B, \bar{B} : Incremental output channel B
 0, $\bar{0}$: Reference signal
 PH \perp : Plug connector housing (shield)

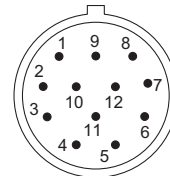
Top view of mating side, male contact base



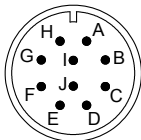
M12 connector, 5-pin



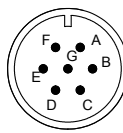
M12 connector, 8-pin



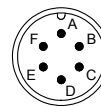
M23 connector, 12-pin



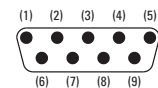
MIL connector, 10-pin



MIL connector, 7-pin



MIL connector, 6-pin



Sub-D connector, 9-pin

1) PH = shield is attached to connector housing.
 2) With type of connection H shield is not attached to connector housing.

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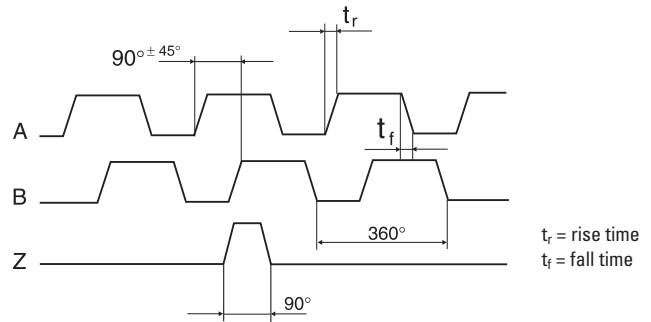
Sendix 5000 / 5020 (shaft / hollow shaft)

Push-Pull / RS422 / Open collector

Special output signal formats

All Kübler encoders come standard with six channels where A leads B in the clockwise direction and the standard index is gated with A & B. The tolerance of the wave form affects the control and, in some cases, may affect the smoothness of system operation.

Wave form tolerances



| A leads B when the shaft is rotated in the clockwise direction viewing the shaft or collet end. This is the Kübler standard. This format applies to the pin key codes listed below. | | A \bar{A} B \bar{B} |
|---|---|----------------------------------|
| Order code i | | |
| | Z gated with A & B. This is the Kübler standard. Z is 90° wide. | Z \bar{Z} |
| 01 | Z gated with B. Z is 180° wide. | Z \bar{Z} |
| 02 | Z gated with A. Z is 180° wide. | Z \bar{Z} |
| 03 | Z ungated. Z is 330° to 360° wide. | Z \bar{Z} |
| 08 | Z is 180° wide | Z \bar{Z} |
| 11 | Z is a minimum width of 270° (electrical degrees). | Z \bar{Z} |
| 13 | Z gated with \bar{B} . Z is 160° wide. | Z \bar{Z} |

| B leads A when the shaft is rotated in the clockwise direction viewing the shaft or collet end. This format applies to the pin key codes listed below. | | A \bar{A} B \bar{B} |
|---|---|----------------------------------|
| Order code i | | |
| 04 | Z gated with A & B. Z is 90° wide. | Z \bar{Z} |
| 05 | Z gated with B. Z is 180° wide. | Z \bar{Z} |
| 06 | Z gated with A. Z is 180° wide. | Z \bar{Z} |
| 07 | Z ungated. Z is 330° to 360° wide. | Z \bar{Z} |
| 09 | Z gated with \bar{B} . Z is 160° wide. | Z \bar{Z} |
| 10 | Z is a negative marker gated with B. Z is 180° wide. | Z \bar{Z} |
| 12 | Z has a minimum width of 270°. | Z \bar{Z} |

Incremental encoders

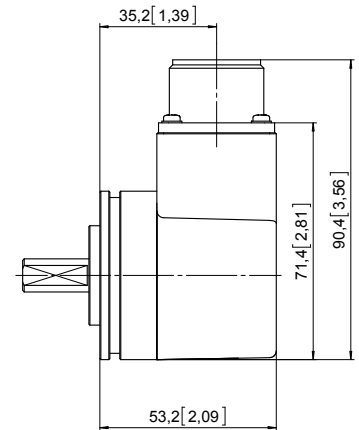
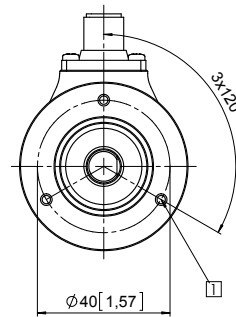
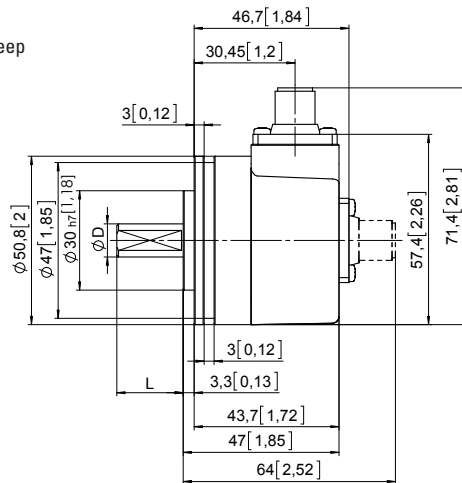
| | | |
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|-------------------------|--|---|

Dimensions shaft version

Dimensions in mm [inch]

Synchro flange, \varnothing 50.8 [2]
Flange type 5 and 6

1 3 x M3, 6 [0.24] deep

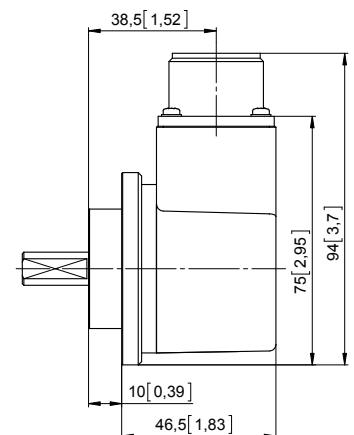
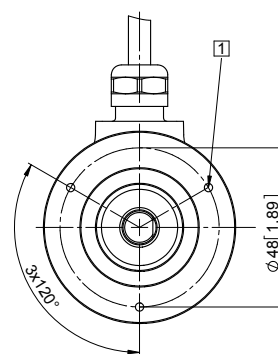
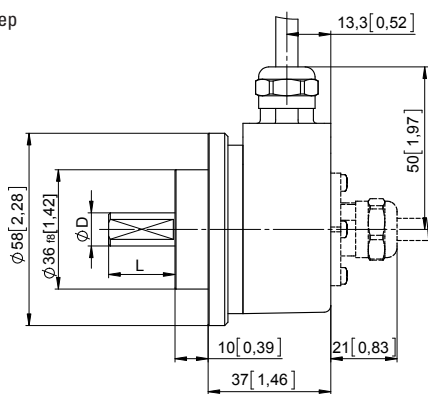


MIL-connector version

| D | Fit | L |
|-----------|-----|-----------|
| 6 [0.24] | h7 | 10 [0.39] |
| 8 [0.32] | h7 | 15 [0.59] |
| 10 [0.39] | f7 | 20 [0.79] |
| 12 [0.47] | h7 | 20 [0.79] |
| 1/4" | h7 | 5/8" |
| 3/8" | h7 | 5/8" |
| 1/4" | h8 | 7/8" |
| 3/8" | h8 | 7/8" |

Clamping flange, \varnothing 58 [2.28]
Flange type 7 and 8

1 3 x M3, 6 [0.24] deep



MIL-connector version

| D | Fit | L |
|-----------|-----|-----------|
| 6 [0.24] | h7 | 10 [0.39] |
| 8 [0.32] | h7 | 15 [0.59] |
| 10 [0.39] | f7 | 20 [0.79] |
| 12 [0.47] | h7 | 20 [0.79] |
| 1/4" | h7 | 5/8" |
| 3/8" | h7 | 5/8" |
| 1/4" | h8 | 7/8" |
| 3/8" | h8 | 7/8" |

Incremental encoders

Incremental encoders

Standard optical

Sendix 5000 / 5020 (shaft / hollow shaft)

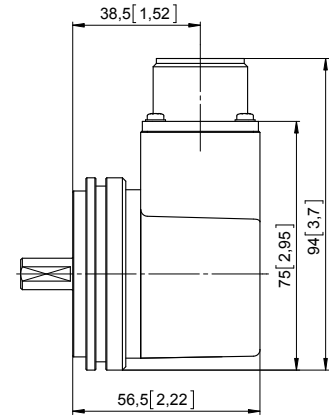
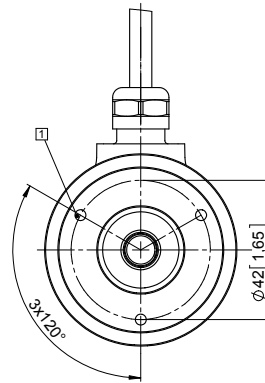
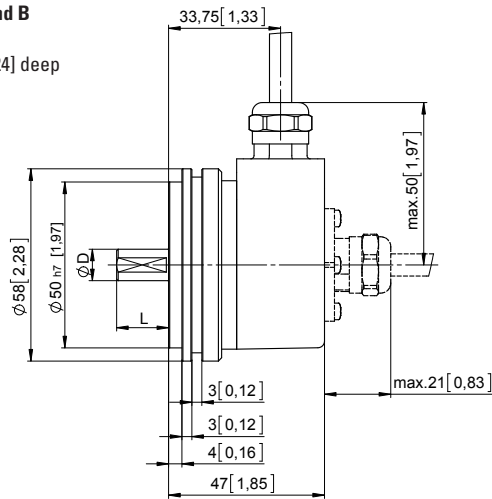
Push-pull / RS422 / Open collector

Dimensions shaft version

Dimensions in mm [inch]

Synchro flange, \varnothing 58 [2.28]
Flange type A and B

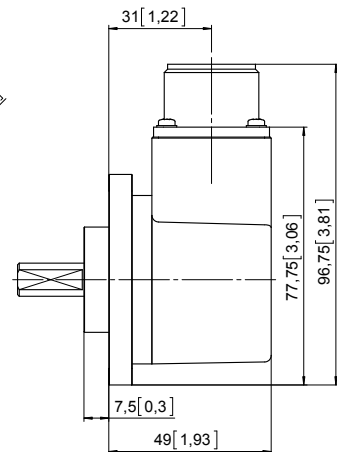
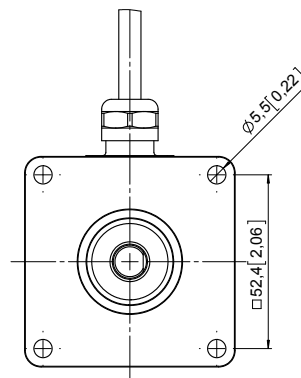
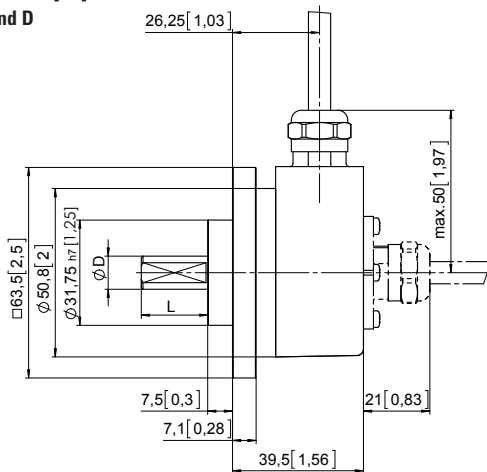
1 3 x M4, 6 [0.24] deep



MIL-connector version

| D | Fit | L |
|-----------|-----|-----------|
| 6 [0.24] | h7 | 10 [0.39] |
| 8 [0.32] | h7 | 15 [0.59] |
| 10 [0.39] | f7 | 20 [0.79] |
| 12 [0.47] | h7 | 20 [0.79] |
| 1/4" | h7 | 5/8" |
| 3/8" | h7 | 5/8" |
| 1/4" | h8 | 7/8" |
| 3/8" | h8 | 7/8" |

Square flange, \square 63.5 [2.5]
Flange type C and D



MIL-connector version

| D | Fit | L |
|-----------|-----|-----------|
| 6 [0.24] | h7 | 10 [0.39] |
| 8 [0.32] | h7 | 15 [0.59] |
| 10 [0.39] | f7 | 20 [0.79] |
| 12 [0.47] | h7 | 20 [0.79] |
| 1/4" | h7 | 5/8" |
| 3/8" | h7 | 5/8" |
| 1/4" | h8 | 7/8" |
| 3/8" | h8 | 7/8" |

Incremental encoders

| | | |
|-------------------------|--|---|
| Standard optical | Sendix 5000 / 5020 (shaft / hollow shaft) | Push-pull / RS422 / Open collector |
|-------------------------|--|---|

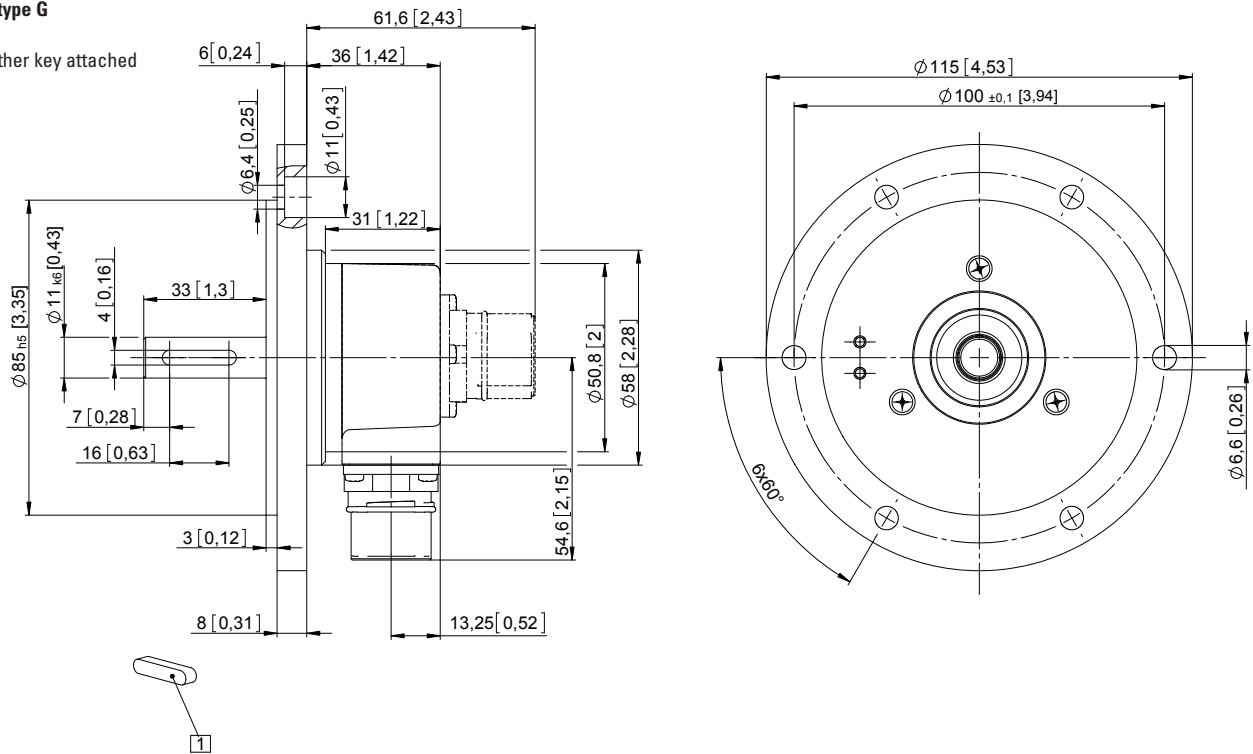
Dimensions shaft version

Dimensions in mm [inch]

Euro flange, ø 115 [4.53]

Flange type G

1 Feather key attached



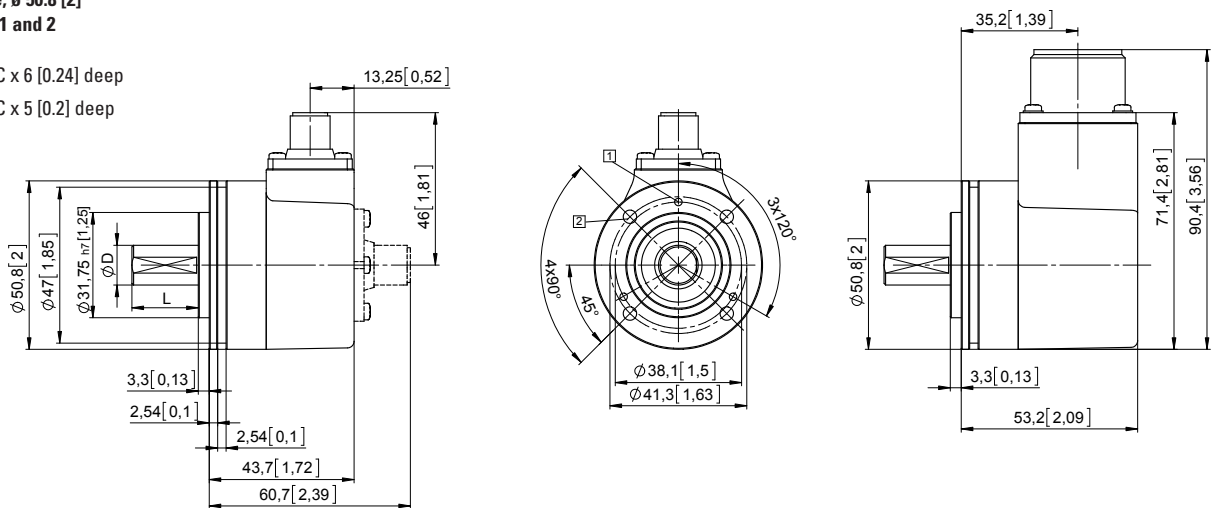
Incremental encoders

Servo flange, ø 50.8 [2]

Flange type 1 and 2

1 4-40 UNC x 6 [0.24] deep

2 6-32 UNC x 5 [0.2] deep



MIL-connector version

| D | Fit | L |
|-----------|-----|-----------|
| 6 [0.24] | h7 | 10 [0.39] |
| 8 [0.32] | h7 | 15 [0.59] |
| 10 [0.39] | f7 | 20 [0.79] |
| 12 [0.47] | h7 | 20 [0.79] |
| 1/4" | h7 | 5/8" |
| 3/8" | h7 | 5/8" |
| 1/4" | h8 | 7/8" |
| 3/8" | h8 | 7/8" |

Incremental encoders

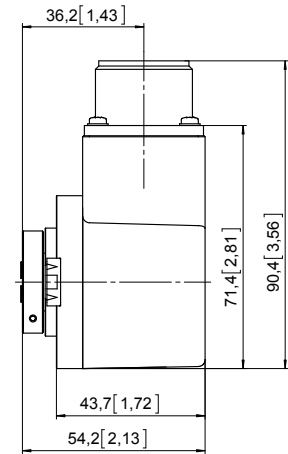
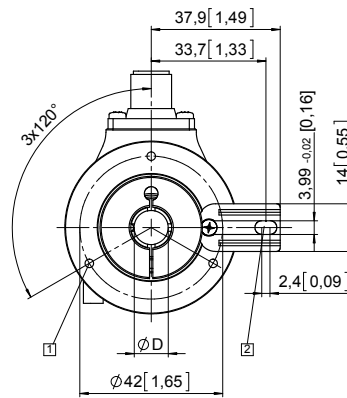
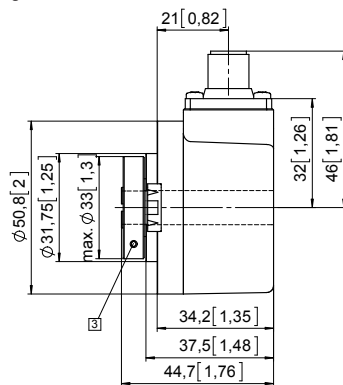
| | | |
|-------------------------|--|---|
| Standard optical | Sendix 5000 / 5020 (shaft / hollow shaft) | Push-pull / RS422 / Open collector |
|-------------------------|--|---|

Dimensions hollow shaft version

Dimensions in mm [inch]

Flange with spring element, long Flange type 1 and 2

- 1 3 x M3, 6 [0.24] deep
- 2 Slot spring element, recommendation: cylindrical pin DIN 7, \varnothing 4 [0.16]
- 3 Recommended torque for the clamping ring 0.6 Nm

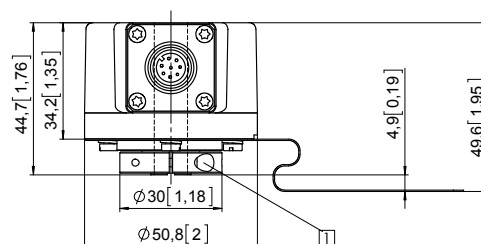
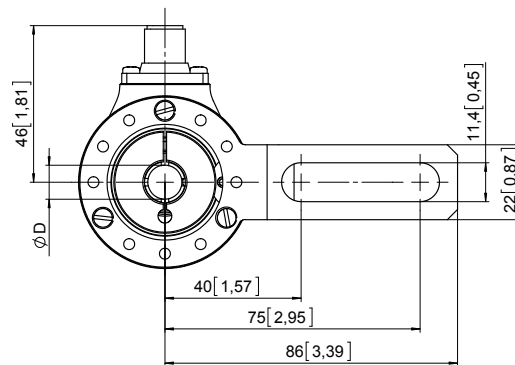


MIL-connector version

| D | Fit |
|-----------|-----|
| 6 [0.24] | H7 |
| 8 [0.32] | H7 |
| 10 [0.39] | H7 |
| 12 [0.47] | H7 |
| 14 [0.55] | H7 |
| 15 [0.59] | H7 |
| 1/4" | H7 |
| 3/8" | H7 |
| 1/2" | H7 |
| 5/8" | H7 |

Flange with torque stop, long Flange type 3 and 4

- 1 Recommended torque for the clamping ring 0.6 Nm



| D | Fit |
|-----------|-----|
| 6 [0.24] | H7 |
| 8 [0.32] | H7 |
| 10 [0.39] | H7 |
| 12 [0.47] | H7 |
| 14 [0.55] | H7 |
| 15 [0.59] | H7 |
| 1/4" | H7 |
| 3/8" | H7 |
| 1/2" | H7 |
| 5/8" | H7 |

Incremental encoders

Standard optical

Sendix 5000 / 5020 (shaft / hollow shaft)

Push-pull / RS422 / Open collector

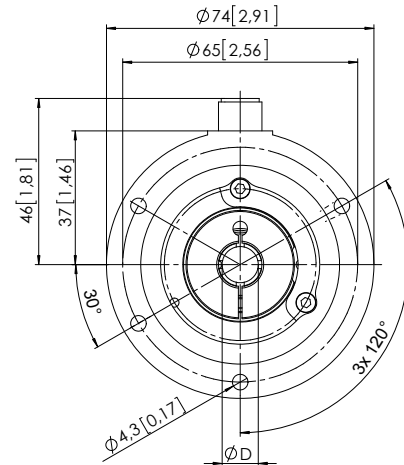
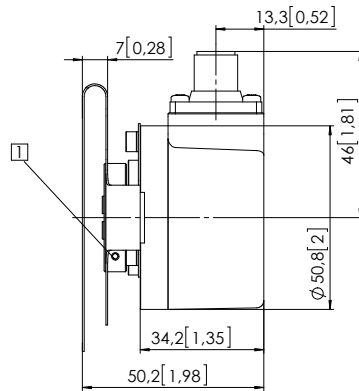
Dimensions hollow shaft version

Dimensions in mm [inch]

Flange with stator coupling, $\varnothing 65$ [2.56] Flange type 7 and 8

- 1 Recommended torque for the clamping ring 0.6 Nm

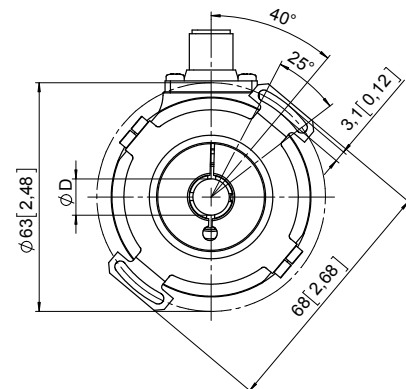
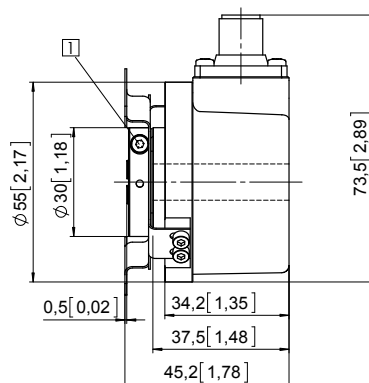
| D | Fit |
|-----------|-----|
| 6 [0.24] | H7 |
| 8 [0.32] | H7 |
| 10 [0.39] | H7 |
| 12 [0.47] | H7 |
| 14 [0.55] | H7 |
| 15 [0.59] | H7 |
| 1/4" | H7 |
| 3/8" | H7 |
| 1/2" | H7 |
| 5/8" | H7 |



Flange with stator coupling, $\varnothing 63$ [2.48] Flange type C and D

- 1 Recommended torque for the clamping ring 0.6 Nm

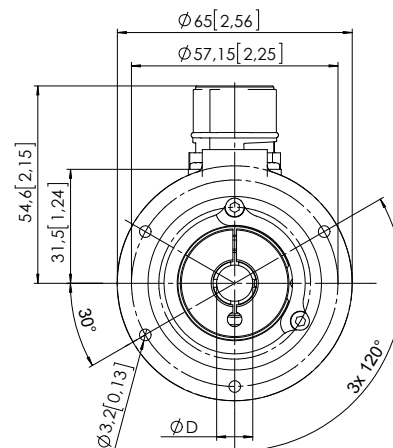
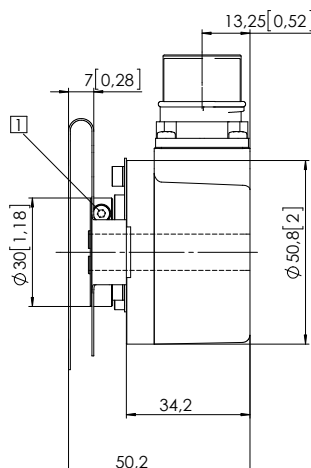
| D | Fit |
|-----------|-----|
| 6 [0.24] | H7 |
| 8 [0.32] | H7 |
| 10 [0.39] | H7 |
| 12 [0.47] | H7 |
| 14 [0.55] | H7 |
| 15 [0.59] | H7 |
| 1/4" | H7 |
| 3/8" | H7 |
| 1/2" | H7 |
| 5/8" | H7 |



Flange with stator coupling, $\varnothing 57.2$ [2.25] Flange type 5 and 6

- 1 Recommended torque for the clamping ring 0.6 Nm

| D | Fit |
|-----------|-----|
| 6 [0.24] | H7 |
| 8 [0.32] | H7 |
| 10 [0.39] | H7 |
| 12 [0.47] | H7 |
| 14 [0.55] | H7 |
| 15 [0.59] | H7 |
| 1/4" | H7 |
| 3/8" | H7 |
| 1/2" | H7 |
| 5/8" | H7 |



Incremental encoders

| | | |
|-------------------------|--|---|
| Standard optical | Sendix 5000 / 5020 (shaft / hollow shaft) | Push-pull / RS422 / Open collector |
|-------------------------|--|---|

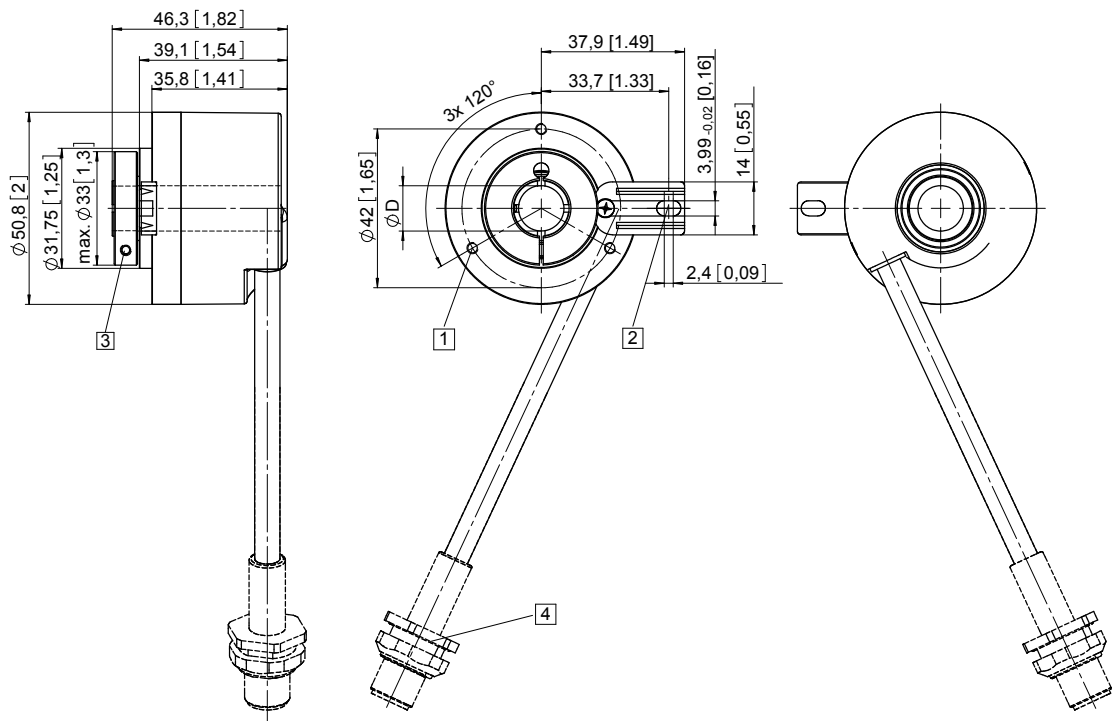
Dimensions hollow shaft version

Dimensions in mm [inch]

Flange with spring element, long and tangential cable outlet

Type of connection E, F and H

- 1 3 x M3, 6 [0.24] deep
- 2 Slot spring element, recommendation: cylindrical pin DIN 7, \varnothing 4 [0.16]
- 3 Recommended torque for the clamping ring 0.6 Nm
- 4 Shield is not applied on connector



| D | Fit |
|-----------|-----|
| 6 [0.24] | H7 |
| 8 [0.32] | H7 |
| 10 [0.39] | H7 |
| 12 [0.47] | H7 |
| 14 [0.55] | H7 |
| 15 [0.59] | H7 |
| 1/4" | H7 |
| 3/8" | H7 |
| 1/2" | H7 |
| 5/8" | H7 |