

Rotary Measuring Technology Incremental hollow shaft encoder

Hollow shaft version economy Type 3720



- Economical version
- Compact unit size only $\varnothing 37 \times 32$ mm
- Very easy mounting. The encoder is mounted directly on the drive shaft without couplings. This saves up to 30 % cost and 60 % clearance compared to shaft versions.
- Temperature and ageing compensation
- Short circuit proof outputs
- Resolution up to 1024 ppr
- Protection up to IP 67
- available as explosion proof zone 2 and 22

- Bracket and cover made from a new High-Tech-Material (composite material)
- High component integration leads to low profile design, high performance and economical pricing
- "Tube Tech[®]" cable outlet guarantees 10x higher strain relief than traditional cabling methods plus higher IP-Protection.
- 1 1/2" (37 mm) diameter housing suitable for replacing resolvers

Mechanical characteristics:

| | |
|--|---|
| Speed: | max. 6000 min ⁻¹ |
| Rotors moment of inertia: | approx. 1.4×10^{-6} kgm ² |
| Starting torque: | < 0.01 Nm |
| Weight: | approx. 0.1 kg |
| Protection acc. to EN 60 529: | bearing, shaft: IP 65 cable outlet: IP 67 |
| Working temperature: | -20° C up to +70 °C ¹⁾³⁾⁴⁾ |
| Operating temperature: | -20° C up to +80 °C ²⁾³⁾⁴⁾ |
| Materials: | shaft: stainless steel; housing, bracket: composite PPA, 40% KF (carbon fibre) cable: PVC |
| Shock resistance acc. to DIN-IEC 68-2-27: | 1000 m/s ² , 6 ms |
| Vibration resistance acc. to DIN-IEC 68-2-6: | 100 m/s ² , 10 ... 2000 Hz |

Pulse rates available at short notice:

10, 50, 100, 180, 200, 250, 300, 360, 400, 500, 512, 600, 1000, 1024

Other pulse rates available on request

¹⁾ At push pull output and Supply voltage > 15 V DC: max. 55 °C
²⁾ At push pull output and Supply voltage > 15 V DC: max. 60 °C

³⁾ Higher temperatures up to 100 °C on request
⁴⁾ Non-condensing

Electrical characteristics:

| Output circuit: | RS 422 (TTL-compatible) | Push-pull (7272) ³⁾ | Push-pull (7272) ³⁾ |
|---|----------------------------|-----------------------------------|-----------------------------------|
| Supply voltage: | 5 V (±5%) | 5 ... 30 V DC | 10 ... 30 V DC |
| Power consumption (no load) with inverted signal: | typ. 40 mA / max. 90 mA | typ. 50 mA/ max. 100 mA | typ. 50 mA/ max. 100 mA |
| Permissible load/channel: | max. ±20 mA | max. ±20 mA | max. ±20 mA |
| Pulse frequency: | max. 250 kHz | max. 250 kHz | max. 250 kHz |
| Signal level high: | min. 2.5 V | min. $U_B - 2.5$ V | min. $U_B - 2.5$ V |
| Signal level low: | max. 0.5 V | max. 0.5 V | max. 0.5 V |
| Rise time t_r | max. 200 ns | max. 1 μ s | max. 1 μ s |
| Fall time t_f | max. 200 ns | max. 1 μ s | max. 1 μ s |
| Short circuit proof outputs ¹⁾ : | yes ²⁾ | yes | yes |
| Reverse connection protection at U_B : | no | no | yes |
| Conforms to CE requirements acc. to EN 61000-6-1, EN 61000-6-4 and EN 61000-6-3 | | | |

¹⁾ If supply voltage correctly applied

³⁾ Max. recommended cable length

²⁾ Only one channel allowed to be shorted-out:
(at $U_B = 5$ V short circuit to channel, 0 V, or + U_B is permitted)

Applications:

- Substitute for resolvers
- Packaging machines
- Electrical machines
- Vehicles
- Conveyers, elevators
- Semiconductor machines
e.g. pick & place, cutting ...
- Material handling
- Special machines

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Terminal assignment

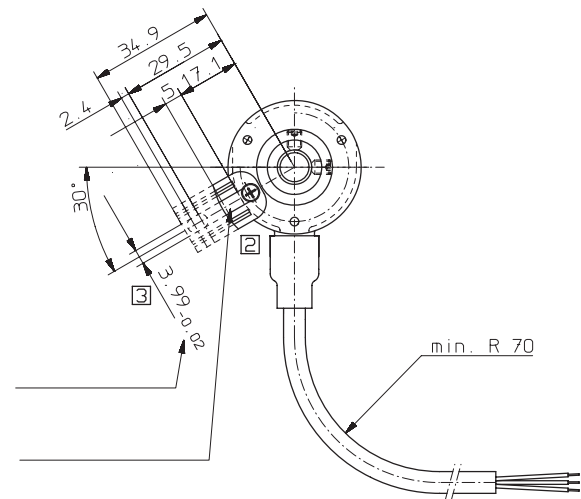
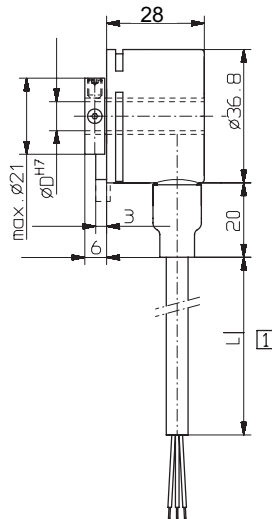
| | | | | | | | | | |
|---------|-----|-----------------|----|-----------|----|-----------|----|-----------|--------|
| Signal: | 0 V | +U _B | A | \bar{A} | B | \bar{B} | 0 | $\bar{0}$ | Shield |
| Colour: | WH | BN | GN | YE | GY | PK | BU | RD | |

Using RS 422 outputs and long cable distances, a wave impedance has to be applied at each cable end.

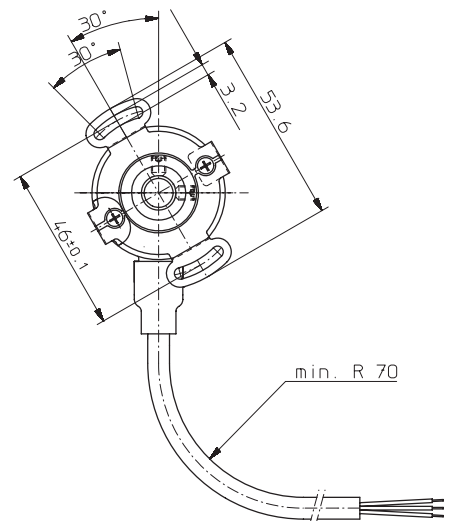
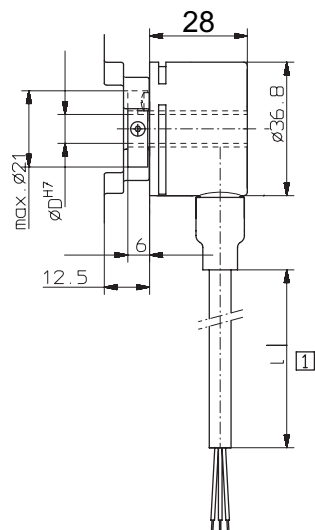
Insulate unused outputs before initial startup.

Dimension

Short torque stop version;
Long torque stop version is dashed



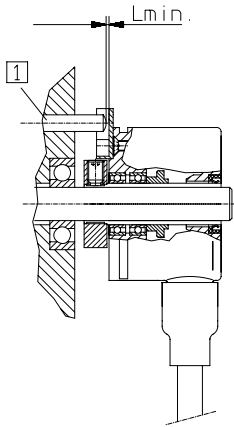
Stator coupling version



- 1 cable length 1, 2, 3 or 5 m
- 2 Slot for support torque, 3 mm deep
- 3 Recommended pin for long torque stop
Cyl. pin acc. to DIN 7 ø 4 mm

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Mounting advice:



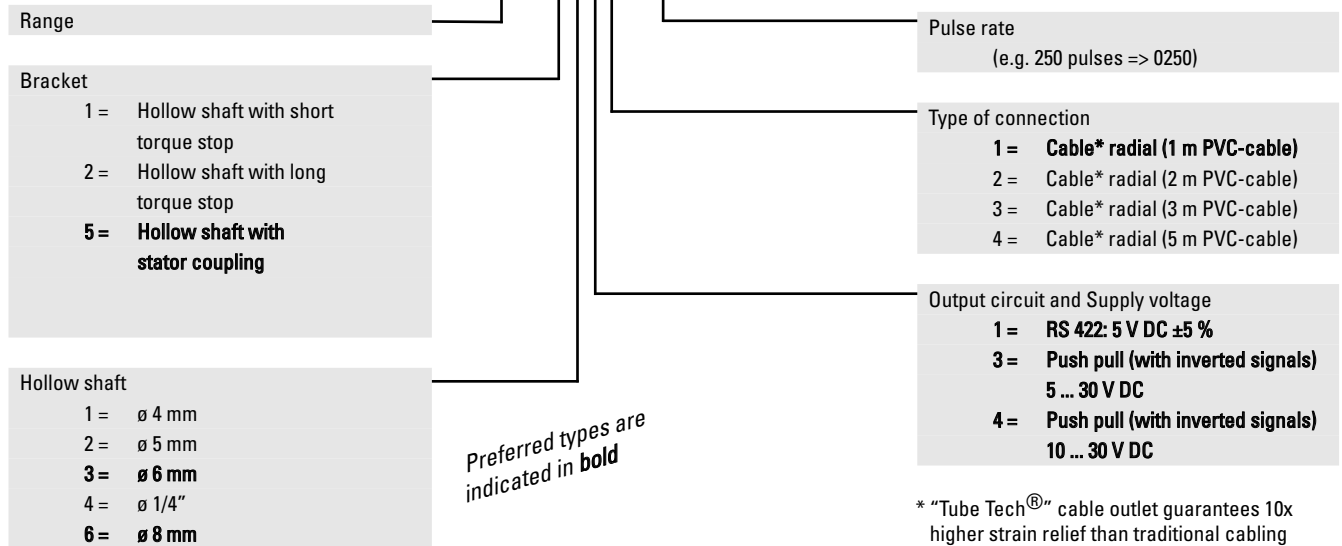
1 Cyl.-pin to DIN 7 \varnothing 4 mm

Mounting advice:

- 1) The brackets and shafts of the encoder and drive should not both be rigidly coupled together at the same time.
- 2) When mounting a hollow shaft encoder, we recommend using a torque stop pin or a stator coupling.
- 3) When mounting the encoder ensure the dimension L_{min} is larger than the maximum axial play of the drive.

Order code:

8.3720.XXXX.XXXX



* "Tube Tech[®]" cable outlet guarantees 10x higher strain relief than traditional cabling methods plus higher IP-Protection.

Other cable lengths are available on request.

| Stock types |
|------------------|
| 8.3720.5631.0100 |
| 8.3720.5631.0360 |
| 8.3720.5631.0500 |
| 8.3720.5631.1000 |
| 8.3720.5631.1024 |

Accessories:
Cyl. pin acc. to DIN 7 \varnothing 4 mm
Art-no.: 8.0010.4700.0000

