

Incremental encoders

Micro series - shaft $\varnothing 5$ mm

10...2048 pulses per revolution

BDK



BDK with shaft

Features

- Mini encoder with solid shaft $\varnothing 5$ mm
- Optical sensing method
- Max. 2048 pulses per revolution
- Housing $\varnothing 30$ mm
- Operation speed max. 12000 rpm
- Synchro flange

Technical data - electrical ratings

| | |
|-----------------------|---|
| Voltage supply | 5 VDC ± 10 % 10...30 VDC |
| Consumption typ. | 60 mA (5 VDC, w/o load) 30 mA (24 VDC, w/o load) |
| Pulses per revolution | 10...2048 |
| Reference signal | Zero pulse, width 90° |
| Sensing method | Optical |
| Output frequency | ≤ 100 kHz |
| Output signals | A 90° B, N + inverted |
| Output stages | Linedriver/RS422 Push-pull short-circuit proof |
| Interference immunity | DIN EN 61000-6-2 |
| Emitted interference | DIN EN 61000-6-3 |
| Approval | UL approval / E217823 |

Technical data - mechanical design

| | |
|-------------------------|---|
| Size (flange) | $\varnothing 30$ mm |
| Shaft type | $\varnothing 5$ mm solid shaft |
| Admitted shaft load | ≤ 10 N axial ≤ 10 N radial |
| Flange | Synchro flange |
| Protection DIN EN 60529 | IP 42, IP 65 |
| Operating speed | ≤ 12000 rpm (IP 42) ≤ 6000 rpm (IP 64) |
| Operating torque typ. | 0.0014 Nm (IP 42) 0.0075 Nm (IP 64) |
| Materials | Housing: polyamide black Flange: aluminium |
| Operating temperature | $-20 \dots +85$ °C |
| Relative humidity | 95 % non-condensing |
| Resistance | DIN EN 60068-2-6 Vibration 10 g, 16-200 Hz DIN EN 60068-2-27 Shock 50 g, 11 ms |
| Connection | Connector M9, 5-pin Connector M9, 8-pin Cable 1 m |
| Weight approx. | 85 g |

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Part number

BDK 16.

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

| | | | | | |
|---|--|--|--|--|--|
| | | | | | |
| Connection | | | | | |
| 4 Cable 1 m, axial | | | | | |
| 5 Cable 1 m, radial | | | | | |
| 9 Connector radial | | | | | |
| Solid shaft | | | | | |
| 5 \varnothing 5 mm, IP 42 | | | | | |
| L5 \varnothing 5 mm, IP 64 | | | | | |
| Pulse number - see table | | | | | |
| Voltage supply / signals | | | | | |
| 05A 5 VDC / antivalent (TTL compatible) | | | | | |
| 24K 10...30 VDC / push-pull short-circuit proof | | | | | |

Accessories

Connectors and cables

| | |
|----------|---|
| 10132983 | Female connector M9, 8-pin, straight |
| 11094664 | Female connector M9, 8-pin, straight, 2 m cable |
| 11094665 | Female connector M9, 8-pin, straight, 5 m cable |
| 11094660 | Female connector M9, 5-pin, straight, 2 m cable |
| 11094662 | Female connector M9, 5-pin, straight, 5 m cable |

Mounting accessories

| | |
|----------|-------------------------------|
| 10106004 | Clamp set \varnothing 10 mm |
|----------|-------------------------------|

Pulse number

| | | | | |
|----|-----|-----|------|------|
| 10 | 50 | 120 | 360 | 1024 |
| 20 | 60 | 200 | 500 | 2000 |
| 30 | 100 | 250 | 1000 | 2048 |

Other pulse numbers on request.

Trigger level

| Outputs 05A | Complementary Linedriver RS422 |
|-------------------|---|
| Output level High | $>2,4 \text{ V}$ ($I = -20 \text{ mA}$) |
| Output level Low | $<0,4 \text{ V}$ ($I = 20 \text{ mA}$) |
| Load High | $<20 \text{ mA}$ |
| Load Low | $<20 \text{ mA}$ |

| Outputs 24K (125 Ω) | Push-pull short-circuit protection |
|-----------------------------|--|
| Output level High | $>+V_s - 5,7 \text{ V}$ ($I = -30 \text{ mA}$) |
| Output level Low | $<5,7 \text{ V}$ ($I = 30 \text{ mA}$) |
| Load High | $<30 \text{ mA}$ |
| Load Low | $<30 \text{ mA}$ |

Incremental encoders

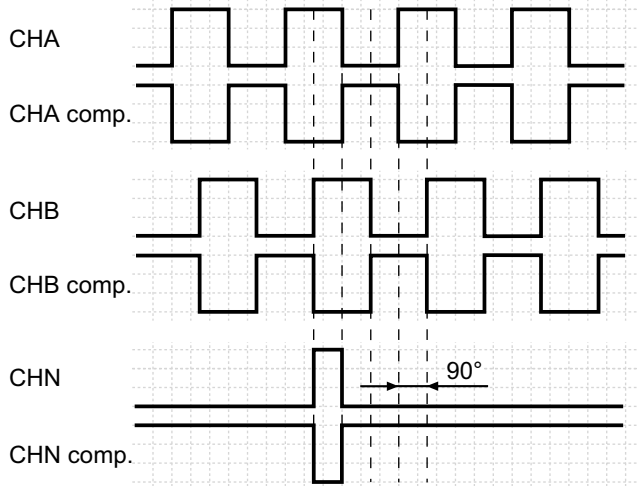
Micro series - shaft $\varnothing 5$ mm

10...2048 pulses per revolution

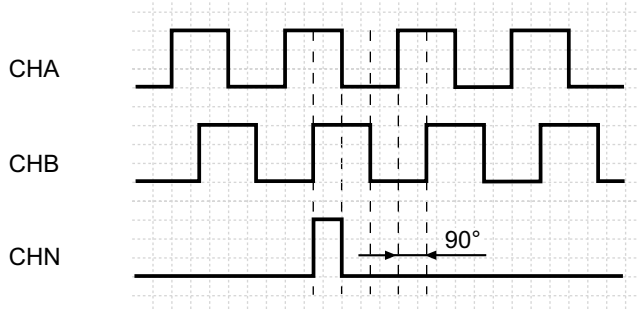
BDK

Output signals

Counter clockwise rotating direction when looking at the flange.
05A



Counter clockwise rotating direction when looking at the flange.
24K



Terminal assignment

Cable

for connection references -4 and -5

05A

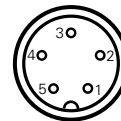
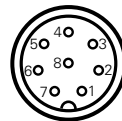
24K

| Core colour | Signals | Core colour | Signals |
|-------------|--------------------------|--------------------------|---------|
| brown | +Vs | brown | +Vs |
| green | CHA | green | CHA |
| red | CHA compl. | – | – |
| yellow | CHB | yellow | CHB |
| blue | CHB compl. | – | – |
| pink | CHN | pink | CHN |
| gray | CHN compl. | – | – |
| white | 0 V | white | 0 V |
| Cable data | 8 x 0.14 mm ² | 5 x 0.14 mm ² | |
| Screen | connected to housing | | |

Connector M9 male

for connection reference -9

| | 05A | 24K |
|-----------|------------|---------|
| Connector | Signals | Signals |
| Pin 1 | 0 V | 0 V |
| Pin 2 | +Vs | +Vs |
| Pin 3 | CHA | CHA |
| Pin 4 | CHB | CHB |
| Pin 5 | CHN compl. | CHN |
| Pin 6 | CHN | – |
| Pin 7 | CHB compl. | – |
| Pin 8 | CHA compl. | – |



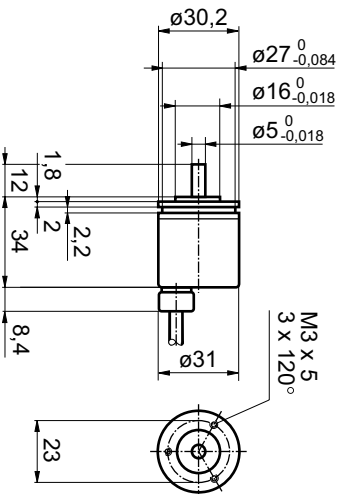
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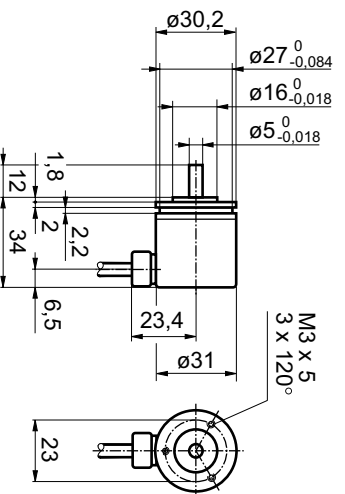
BDK

Dimensions

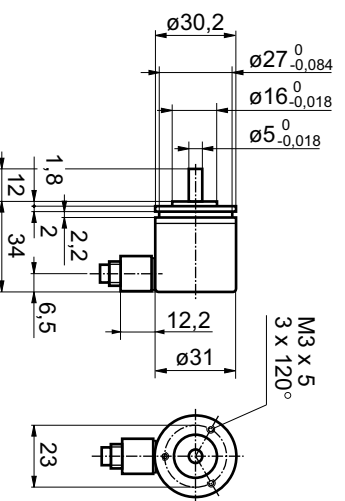
BDK cable axial



BDK cable radial



BDK connector output radial



BDK connector dimensions

