

Incremental encoders

Mini series end shaft $\varnothing 12$ mm, hollow shaft $\varnothing 6$ mm

Resolution 10...2048 pulses

BHK



BHK with end shaft

Features

- Mini encoder with end shaft or hollow shaft
- Optical sensing
- Resolution max. 2048 ppr
- Housing $\varnothing 40$ mm
- Operation speed max. 12000 rpm
- End shaft $\varnothing 12$ mm, hollow shaft $\varnothing 6$ mm
- Versatile mounting accessories

Technical data - electrical ratings

| | |
|-----------------------------|---|
| Voltage supply | 5 VDC ± 10 % 10...30 VDC |
| Consumption w/o load (typ.) | 60 mA (5 VDC) 30 mA (24 VDC) |
| Resolution (steps/turn) | 10...2048 |
| Reference signal | Zero pulse, width 90° |
| Sensing method | Optical |
| Output frequency | ≤ 100 kHz |
| Output signals | A 90° B, N + inverted |
| Output circuit | 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

| | |
|-------------------------|---|
| Housing | $\varnothing 40$ mm |
| Shaft | $\varnothing 6$ mm hollow shaft $\varnothing 12$ mm end shaft |
| Protection DIN EN 60529 | IP 42, IP 65 |
| Operating speed | ≤ 12000 rpm |
| Operating torque typ. | 0.0021 Nm IP 42 0.0075 Nm IP 64 |
| Materials | Housing: polyamide black Flange: aluminium |
| Operating temperature | -20...+85 °C |
| Relative humidity | 95 % non-condensing |
| Resistance | DIN EN 60068-2-6 Vibration 10 g, 10-200 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. | 100 g |

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Part number

BHK 16. - -

| | | | | | | | | | |
|--|--|--|--|--|--|--|--|-------------------|---|
| | | | | | | | | | |
| | | | | | | | | <u>Connection</u> | |
| | | | | | | | | 5 | Cable 1 m, radial |
| | | | | | | | | 9 | Connector radial |
| | | | | | | | | | <u>Shaft</u> |
| | | | | | | | | B2 | End shaft $\varnothing 12$ mm, IP 42, with clamping ring |
| | | | | | | | | B6 | Hollow shaft $\varnothing 6$ mm, IP 42, with clamping ring |
| | | | | | | | | E6 | Hollow shaft $\varnothing 6$ mm, IP 64, with clamping ring |
| | | | | | | | | I2 | End shaft $\varnothing 12$ mm, IP 42, with clamping ring and sping plate |
| | | | | | | | | M6 | Hollow shaft $\varnothing 6$ mm, IP 64, with clamping ring and spring plate |

See part number (pulses)

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 |
| 10123168 | Female connector M9, 8-pin, straight, 2 m cable |
| 10123169 | Female connector M9, 8-pin, straight, shielded, 5 m cable |
| 10123166 | Female connector M9, 5-pin, straight, shielded, 2 m cable |
| 10123167 | Female connector M9, 5-pin, straight, shielded, 5 m cable |

Mounting accessories

| | |
|----------|---|
| 10158423 | Set of spring coupling (round) for hollow shaft encoder ($< \varnothing 8$ mm) |
| 10158424 | Set of spring coupling (square) for hollow shaft encoder ($\geq \varnothing 8$ mm) |

Part number (pulses)

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

Other pulse numbers upon request.

Trigger level

| Outputs 05A | Complementary Linedriver RS422 |
|--|---|
| Output level High | >2,4 V (I = -20 mA) |
| Output level Low | <0,4 V (I = 20 mA) |
| Load High | <20 mA |
| Load Low | <20 mA |
| Outputs 24K (125 Ω) | Push-pull short-circuit protection |
| Output level High | >+Vs - 5,7 V (I = -30 mA) |
| Output level Low | <5,7 V (I = 30 mA) |
| Load High | <30 mA |
| Load Low | <30 mA |

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Terminal assignment

Cable

for connection reference -5

05A

| 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 |
| grey | 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 flange | | |

Connector M9 male

for connection reference -9

05A

| Connector | Core colour* | Signals |
|-----------|--------------|------------|
| Pin 1 | white | 0 V |
| Pin 2 | brown | +Vs |
| Pin 3 | green | CHA |
| Pin 4 | yellow | CHB |
| Pin 5 | grey | CHN compl. |
| Pin 6 | pink | CHN |
| Pin 7 | blue | CHB compl. |
| Pin 8 | red | CHA compl. |

24K

| Connector | Core colour* | Signals |
|-----------|--------------|---------|
| Pin 1 | white | 0 V |
| Pin 2 | brown | +Vs |
| Pin 3 | brack | CHA |
| Pin 4 | blue | CHB |
| Pin 5 | grey | CHN |

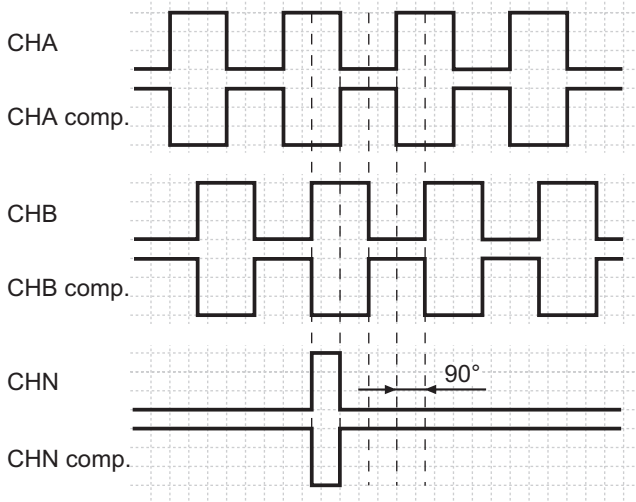
*these core colours are valid for the assembled mating connectors (see accessories)



Output signals

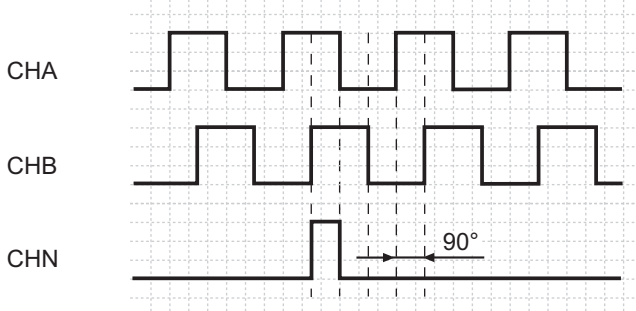
Counter clockwise rotating direction when looking at the flange.

05A



Counter clockwise rotating direction when looking at the flange.

24K



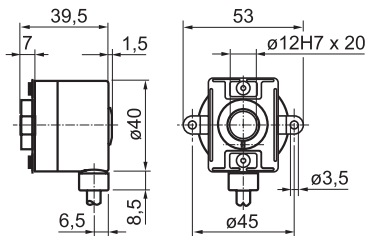
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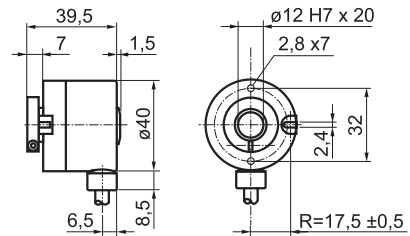
BHK

Dimensions

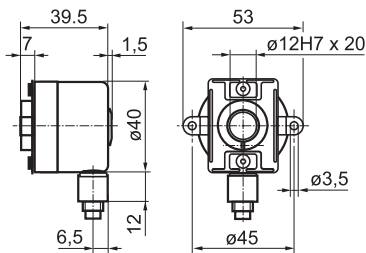
BHK clamping ring and spring washer



BHK clamping ring



BHK connector output radial



BHK connector dimensions

