

# Incremental encoders

## Shaft with clamping or synchro flange

### Resolution 7200...320000 pulses

#### BDH, BDT - HighRes



BDT - HighRes with synchro flange

#### Features

- High resolution programmable encoder
- Shaft  $\varnothing 10$  mm or  $\varnothing 6$  mm
- Optical sensing
- Resolution max. 320000 ppr
- Clamping or synchro flange
- Industrial standard
- Small profile depth

#### Technical data - electrical ratings

|                             |                                                                                     |
|-----------------------------|-------------------------------------------------------------------------------------|
| Voltage supply              | 5 VDC $\pm 10$ %<br>10...30 VDC                                                     |
| Consumption w/o load (typ.) | 80 mA (5 VDC)<br>60 mA (24 VDC)                                                     |
| Resolution (steps/turn)     | 7200...320000                                                                       |
| Reference signal            | Zero pulse, width 90°                                                               |
| Sensing method              | Optical                                                                             |
| Output frequency            | $\leq 300$ kHz (24K)<br>$\leq 1300$ kHz (05A)                                       |
| Output signals              | A 90° B, N + inverted                                                               |
| Output circuit              | Antivalent<br>Push-pull short-circuit proof<br>Push-pull antiv. 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

|                         |                                                                                         |
|-------------------------|-----------------------------------------------------------------------------------------|
| Protection DIN EN 60529 | IP 42, IP 65                                                                            |
| Operating speed         | $\leq 12000$ rpm (IP 42)<br>$\leq 6000$ rpm (IP 65)                                     |
| Materials               | Housing: steel<br>Housing: aluminium<br>(connection -A)<br>Flange: aluminium            |
| Operating temperature   | -20...+85 °C                                                                            |
| Relative humidity       | 95 % non-condensing                                                                     |
| Resistance              | DIN EN 60068-2-6<br>Vibration 10 g, 10-200 Hz<br>DIN EN 60068-2-27<br>Shock 50 g, 11 ms |
| Connection              | Connector M23, 12-pin<br>Cable 2 m                                                      |
| Weight approx.          | 300 g                                                                                   |

#### BDH - HighRes

|                       |                                         |
|-----------------------|-----------------------------------------|
| Dimensions (flange)   | $\varnothing 55$ mm                     |
| Shaft                 | $\varnothing 10$ mm (clamping flange)   |
| Shaft loading         | $\leq 40$ N axial<br>$\leq 60$ N radial |
| Flange                | Clamping flange                         |
| Operating torque typ. | 0.022 Nm (IP 42)<br>0.026 Nm (IP 65)    |

#### BDT - HighRes

|                       |                                         |
|-----------------------|-----------------------------------------|
| Dimensions (flange)   | $\varnothing 58$ mm                     |
| Shaft                 | $\varnothing 6$ mm (synchro flange)     |
| Shaft loading         | $\leq 10$ N axial<br>$\leq 20$ N radial |
| Flange                | Synchro flange                          |
| Operating torque typ. | 0.0023 Nm (IP 42)<br>0.026 Nm (IP 65)   |



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Resolution 7200...320000 pulses

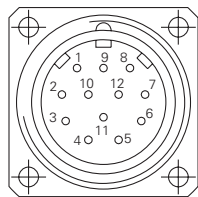
BDH, BDT - *HighRes*

## Terminal assignment

| Cable                                             |                          |                          |         |
|---------------------------------------------------|--------------------------|--------------------------|---------|
| for connection references <b>-4</b> and <b>-5</b> |                          |                          |         |
| <b>05A</b>                                        |                          | <b>24K</b>               |         |
| 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 <sup>2</sup> | 5 x 0.14 mm <sup>2</sup> |         |
| Screen                                            | connected to flange      |                          |         |

| Connector M23 male                                |            |
|---------------------------------------------------|------------|
| for connection references <b>-A</b> and <b>-B</b> |            |
| <b>05A, 24K</b>                                   |            |
| Connector                                         | Signals    |
| Pin 1                                             | CHA compl. |
| Pin 2                                             | +Vs        |
| Pin 3                                             | CHN        |
| Pin 4                                             | CHN compl. |
| Pin 5                                             | CHB        |
| Pin 6                                             | CHB compl. |
| Pin 7                                             | n.c.       |
| Pin 8                                             | CHA        |
| Pin 9                                             | Housing    |
| Pin 10                                            | 0 V        |
| Pin 11                                            | 0 V        |
| Pin 12                                            | +Vs        |

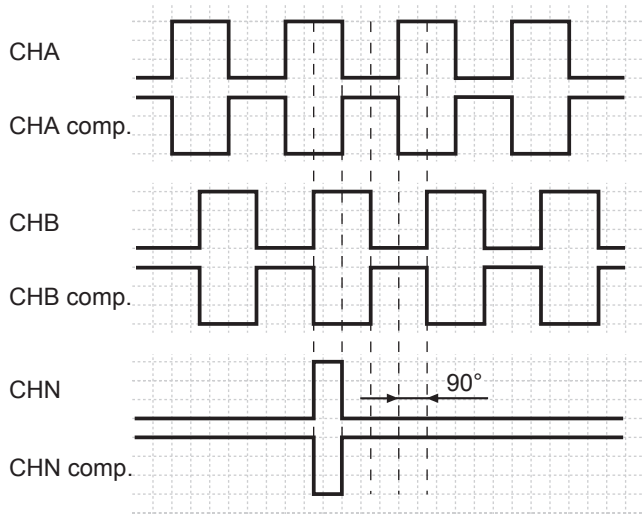
Push-pull version **24K** without CHx complementary signals



## Output signals

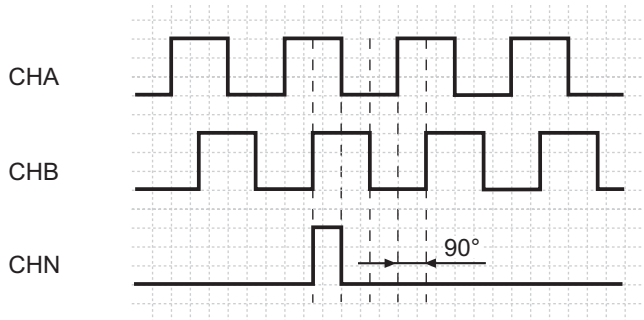
Counter clockwise rotating direction when looking at the flange.

**05A**



Counter clockwise rotating direction when looking at the flange.

**24K**



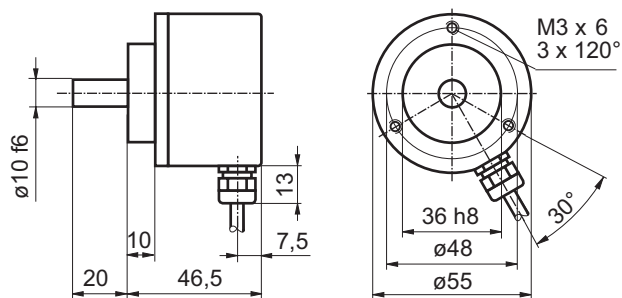
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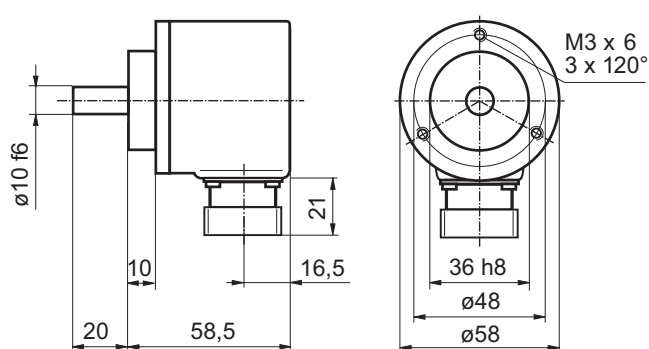
BDH, BDT - HighRes

## Dimensions

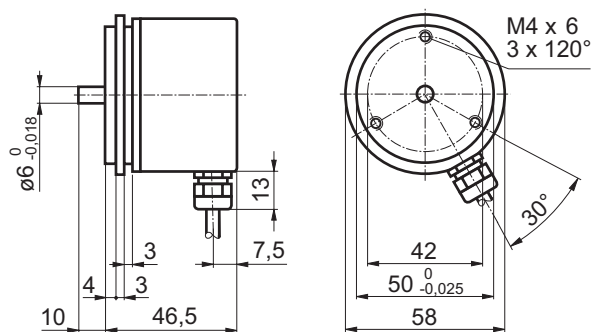
BDH clamping flange, cable radial



BDH clamping flange, connector output radial



BDT synchro flange, cable radial



BDT synchro flange, connector output radial

