

# Incremental encoders

## Solid shaft with clamping or synchro flange

### 7200...320000 pulses per revolution

#### BDH, BDT - HighRes



BDT - HighRes with synchro flange

#### Features

- High resolution programmable encoder
- Solid shaft  $\varnothing 10$  mm or  $\varnothing 6$  mm
- Optical sensing method
- Max. 320000 pulses per revolution
- Clamping or synchro flange
- Industrial standard
- Small profile depth

#### Technical data - electrical ratings

Voltage supply	5 VDC $\pm 10$ % 10...30 VDC
Consumption typ.	80 mA (5 VDC, w/o load) 60 mA (24 VDC, w/o load)
Pulses per revolution	7200...320000
Reference signal	Zero pulse, width 90°
Sensing method	Optical
Output frequency	$\leq 300$ kHz (24K) $\leq 1300$ kHz (05A)
Output signals	A 90° B, N + inverted
Output stages	Antivalent Push-pull short-circuit proof 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) $\leq 6000$ rpm (IP 65)
Materials	Housing: steel Housing: aluminium (connection -A) 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 M23, 12-pin Cable 2 m
Weight approx.	300 g

#### BDH - HighRes

Size (flange)	$\varnothing 55$ mm
Shaft type	$\varnothing 10$ mm solid shaft (clamping flange)
Admitted shaft load	$\leq 40$ N axial $\leq 60$ N radial
Flange	Clamping flange
Operating torque typ.	0.022 Nm (IP 42) 0.026 Nm (IP 65)

#### BDT - HighRes

Size (flange)	$\varnothing 58$ mm
Shaft type	$\varnothing 6$ mm solid shaft (synchro flange)
Admitted shaft load	$\leq 10$ N axial $\leq 20$ N radial
Flange	Synchro flange
Operating torque typ.	0.0023 Nm (IP 42) 0.026 Nm (IP 65)

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## Solid shaft with clamping or synchro flange

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**BDH, BDT - HighRes**

#### Part number

##### Clamping flange

BDH 1P.   -  -

			<u>Connection</u>
		5	Cable 2 m, radial
		A	Connector radial
			<u>Solid shaft</u>
	10		ø10 mm, IP 42
	L0		ø10 mm, IP 65
	<u>Pulse number - see table</u>		
	<u>Voltage supply / signals</u>		
	05A 5 VDC / antivalent (TTL compatible)		
	24K 10...30 VDC / push-pull short-circuit proof		

##### Synchro flange

BDT 1P.   -  -

			<u>Connection</u>
		5	Cable 2 m, radial
		A	Connector radial
			<u>Solid shaft</u>
	6		ø6 mm, IP 42
	L6		ø6 mm, IP 65
	<u>Pulse number - see table</u>		
	<u>Voltage supply / signals</u>		
	05A 5 VDC / antivalent (TTL compatible)		
	24K 10...30 VDC / push-pull short-circuit proof		

#### Pulse number

7200	16384	40000	131072
8192	20000	65536	160000
10000	32768	80000	320000

Other pulse numbers on request.

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7200	16384	40000	131072
8192	20000	65536	160000
10000	32768	80000	320000

Other pulse numbers on 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 (25 Ω)	Push-pull short-circuit protection
Output level High	>+Vs - 3,7 V (I = -30 mA)
Output level Low	<2,5 V (I = 30 mA)
Load High	<30 mA
Load Low	<30 mA

#### Accessories

##### Connectors and cables

10107687	Female connector M23, 12-pin, straight, without cable
10130367	Female connector M23, 12-pin, straight, 2 m cable
10118532	Female connector M23, 12-pin, straight, 5 m cable

##### Mounting accessories for BDH - HighRes

10125051	Mounting adaptor for encoders with clamping flange
10141255	Adaptor plate for clamping flange for modification into synchro flange
11053277	Bellows coupling aluminium/stainless steel 10 mm

##### Mounting accessories for BDT - HighRes

10252773	Clamp set ø15 mm
10117667	Mounting adaptor for encoders with synchro flange

##### Programming accessories

10161910	Set of programming tools
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#### Terminal assignment

##### Cable

for connection references **-4** and **-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 <sup>2</sup>	5 x 0.14 mm <sup>2</sup>	
Screen	connected to flange		

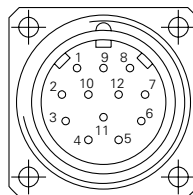
##### Connector M23 male

for connection references **-A** and **-B**

##### 05A, 24K

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

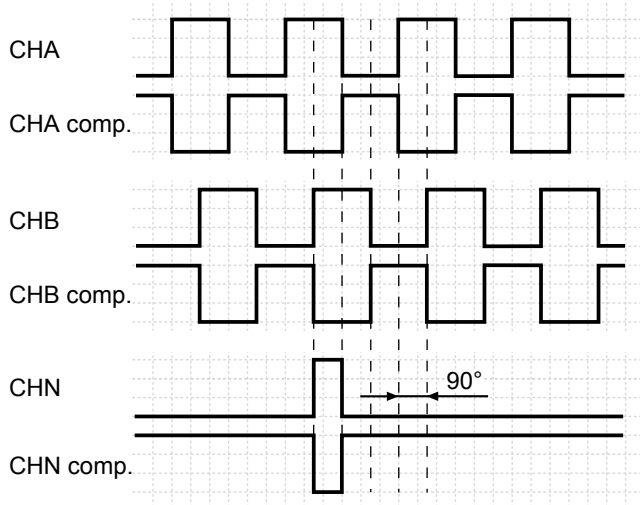
Push-pull version **24K** without CHx complementary signals



#### Output signals

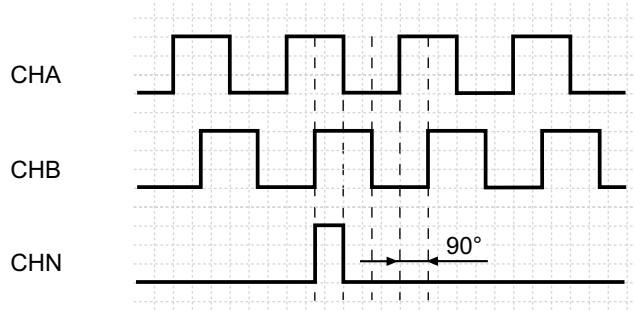
Counter clockwise rotating direction when looking at the flange.

##### 05A



Counter clockwise rotating direction when looking at the flange.

##### 24K



# Incremental encoders

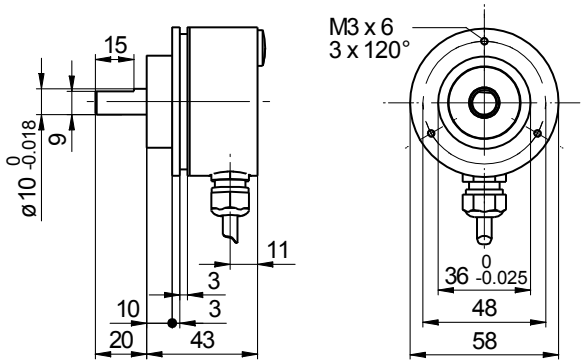
## Solid shaft with clamping or synchro flange

### 7200...320000 pulses per revolution

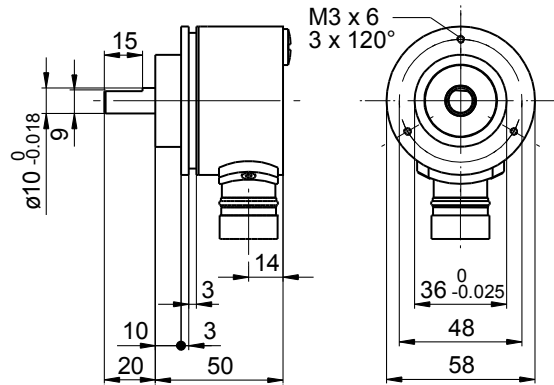
BDH, BDT - HighRes

#### Dimensions

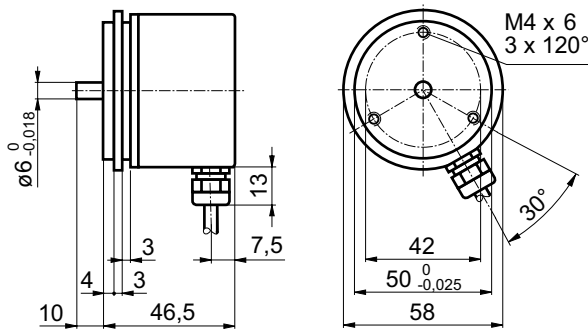
BDH clamping flange, cable radial



BDH clamping flange, connector output radial



BDT synchro flange, cable radial



BDT synchro flange, connector output radial

