

# Incremental encoders

End or hollow shaft  $\varnothing 12$  mm  
Resolution 4096...320000 pulses

## BHF, BHG - HighRes



BHF with end shaft

### Features

- High resolution programmable encoder
- Optical sensing
- Resolution max. 320000 ppr
- Programmable via BISS
- Small profile depth
- End or hollow shaft  $\varnothing 12$  mm

### Technical data - electrical ratings

Voltage supply	5 VDC $\pm 10$ % 10...30 VDC
Consumption w/o load (typ.)	60 mA (5 VDC) 40 mA (24 VDC)
Resolution (steps/turn)	4096...320000
Reference signal	Zero pulse, programmable
Sensing method	Optical
Output frequency	$\leq 1300$ kHz
Output signals	A 90° B, N + inverted
Output circuit	Antivalent 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

Dimensions (flange)	$\varnothing 58$ mm
Protection DIN EN 60529	IP 65, IP 42
Operating speed	$\leq 6000$ rpm
Materials	Housing: aluminium 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

### BHF

Shaft	$\varnothing 12$ mm end shaft
Operating torque typ.	0.009 Nm (IP 42) 0.037 Nm (IP 65)

### BHG

Shaft	$\varnothing 12$ mm hollow shaft
Operating torque typ.	0.0175 Nm (IP 42) 0.047 Nm (IP 65)

# Incremental encoders

## End or hollow shaft $\varnothing 12$ mm

### Resolution 4096...320000 pulses

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#### Part number

##### End shaft

BHF 1 

P	.			-		-	
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								<u>Connection</u>	
								5	Cable 2 m, radial
								A	Connector M23, radial
								<u>Shaft</u>	
								12	End shaft $\varnothing 12$ mm, IP 42
								B2	End shaft $\varnothing 12$ mm, IP 42, with clamping ring
								E2	End shaft $\varnothing 12$ mm, IP 65, with clamping ring
								L2	End shaft $\varnothing 12$ mm, IP 65
									<u>See part number (pulses)</u>
									<u>Voltage supply / signals</u>
									05A 5 VDC / antivalent (TTL compatible)
									24K 10...30 VDC / push-pull short-circuit proof
									<u>Output sequence</u>
									P Programmable

##### Hollow shaft

BHG 1 

P	.			-		-	
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								<u>Connection</u>	
								5	Cable 2 m, radial
								A	Connector M23, radial
								<u>Shaft</u>	
								B2	Hollow shaft $\varnothing 12$ mm, IP 42, with clamping ring
								E2	Hollow shaft $\varnothing 12$ mm, IP 65, with clamping ring
									<u>See part number (pulses)</u>
									<u>Voltage supply / signals</u>
									05A 5 VDC / antivalent (TTL compatible)
									24K 10...30 VDC / push-pull short-circuit proof
									<u>Output sequence</u>
									P Programmable

#### Part number (pulses)

2048	8192	65536	20000	160000
4096	16384	131072	40000	320000
5000	32768	10000	80000	

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	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
10130367	Female connector M23, 12-pin, straight, 2 m cable
10118532	Female connector M23, 12-pin, straight, 5 m cable

##### Mounting accessories for BHF

10136635	Set of spring coupling for encoders $\varnothing 58$ mm
10110616	Clamp set
10107540	Torque pin
10109520	Torque spring washer
10110574	Shaft reducer 12/6 mm
10112322	Shaft reducer 12/8 mm
10114472	Shaft reducer 12/10 mm

##### Mounting accessories for BHG

10136635	Set of spring coupling for encoders $\varnothing 58$ mm
10110616	Clamp set
10107540	Torque pin
10109520	Torque spring washer

##### Programming accessories

10161910	Set of programming tools
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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 <sup>2</sup>	5 x 0.14 mm <sup>2</sup>	
Screen	connected to flange		

#### Connector M23 male

for connection reference -A

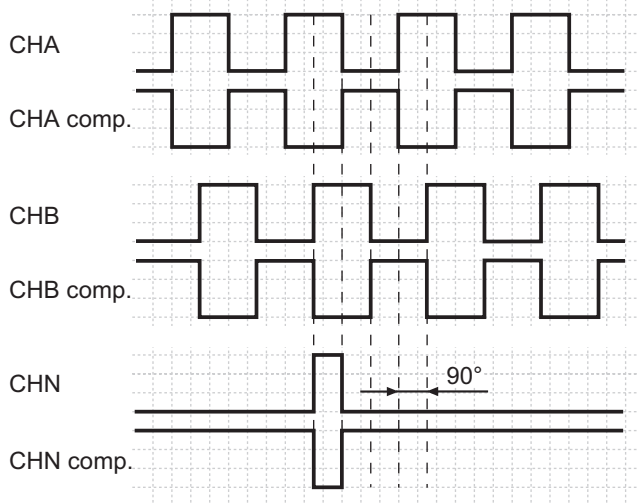
#### 05A, 24K

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

### Output signals

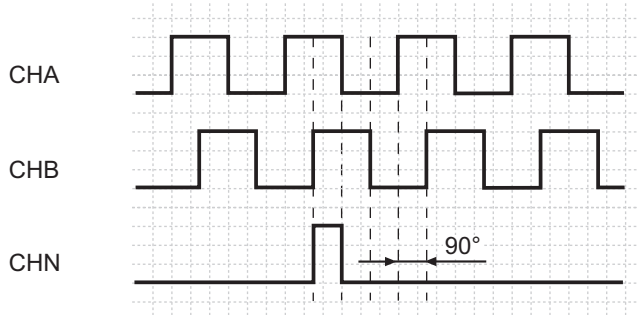
Counter clockwise rotating direction when looking at the flange.

#### 05A

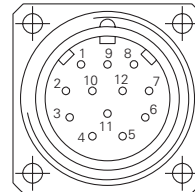


Counter clockwise rotating direction when looking at the flange.

#### 24K



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



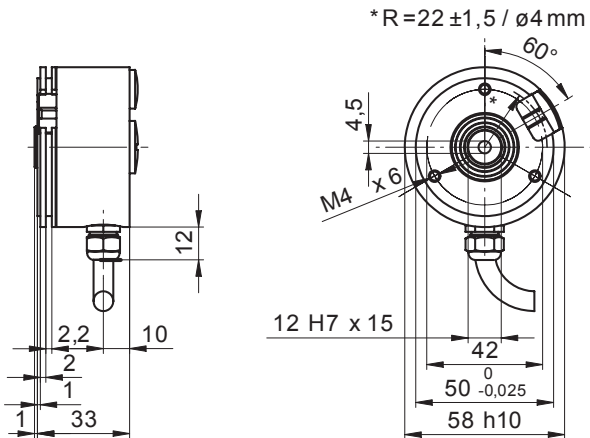
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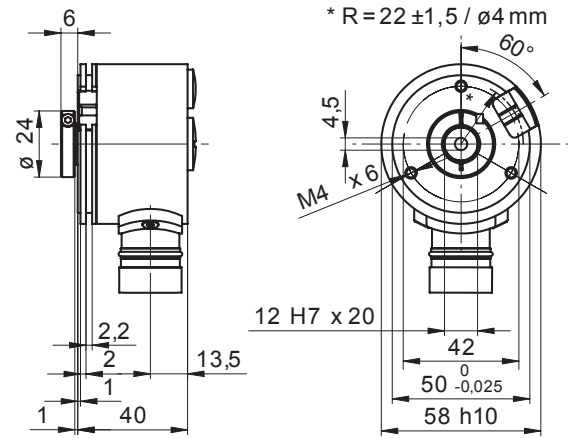
BHF, BHG - HighRes

## Dimensions

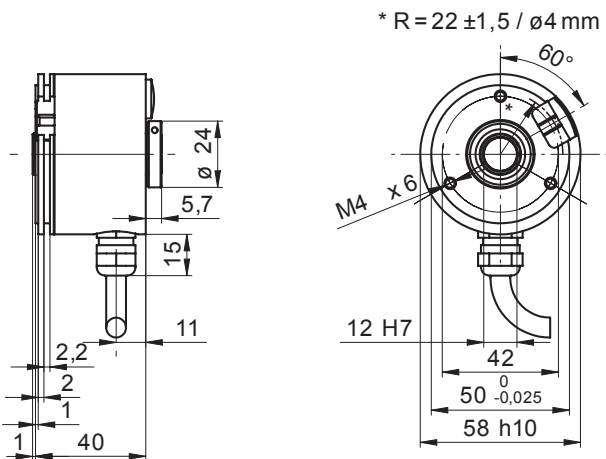
BHF HighRes cable radial



BHF HighRes connector output radial



BHG HighRes cable radial



BHG HighRes connector output radial

