

Incremental encoders

Blind or through hollow shaft $\varnothing 12$ mm
4096...320000 pulses per revolution

BHF, BHG - HighRes



BHF with blind hollow shaft

Features

- High resolution programmable encoder
- Optical sensing method
- Max. 320000 pulses per revolution
- Programmable via BISS
- Small profile depth
- Blind or through hollow shaft $\varnothing 12$ mm

Technical data - electrical ratings

Voltage supply	5 VDC ± 10 % 10...30 VDC
Consumption typ.	60 mA (5 VDC, w/o load) 40 mA (24 VDC, w/o load)
Pulses per revolution	4096...320000
Reference signal	Zero pulse, programmable
Sensing method	Optical
Output frequency	≤ 1300 kHz
Output signals	A 90° B, N + inverted
Output stages	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

Size (flange)	$\varnothing 58$ mm
Protection DIN EN 60529	IP 65, IP 42
Operating speed	≤ 3000 rpm (pulse disc 5000) ≤ 6000 rpm (pulse disc 2048)
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 type	$\varnothing 12$ mm (blind hollow shaft)
Operating torque typ.	0.009 Nm (IP 42) 0.037 Nm (IP 65)

BHG

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

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Part number

Blind hollow shaft

BHF 1

P	.			-		
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				5	<u>Connection</u> Cable 2 m, radial
				A	Connector M23, radial
					<u>Blind hollow shaft</u>
			12		$\varnothing 12$ mm, IP 42
			B2		$\varnothing 12$ mm, IP 42, with clamping ring
			E2		$\varnothing 12$ mm, IP 65, with clamping ring
			L2		$\varnothing 12$ 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
					<u>Output sequence</u>
P					Programmable

Through hollow shaft

BHG 1

P	.			-		
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				5	<u>Connection</u> Cable 2 m, radial
				A	Connector M23, radial
					<u>Through hollow shaft</u>
			B2		$\varnothing 12$ mm, IP 42, with clamping ring
			E2		$\varnothing 12$ mm, IP 65, with clamping ring
					<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
					<u>Output sequence</u>
P					Programmable

Pulse number

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

Pulse disc 2048:
2048, 4096, 8192, 16384, 32768, 65536, 131072
Pulse disc 5000:
10000, 20000, 40000, 80000, 160000, 320000
Other pulse numbers on request.

Trigger level

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 BHF

10136635	Set of spring plate for encoders $\varnothing 58$ mm
10110616	Clamp set $\varnothing 15$ mm
10107540	Torque pin
10109520	Torque spring
10110574	Solid shaft reducer 12/6 mm
10112322	Solid shaft reducer 12/8 mm
10114472	Solid shaft reducer 12/10 mm

Mounting accessories for BHG

10136635	Set of spring plate for encoders $\varnothing 58$ mm
10110616	Clamp set $\varnothing 15$ mm
10107540	Torque pin
10109520	Torque spring

Programming accessories

10161910	Set of programming tools
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Incremental encoders

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

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Terminal assignment

Cable

for connection reference -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
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 M23 male

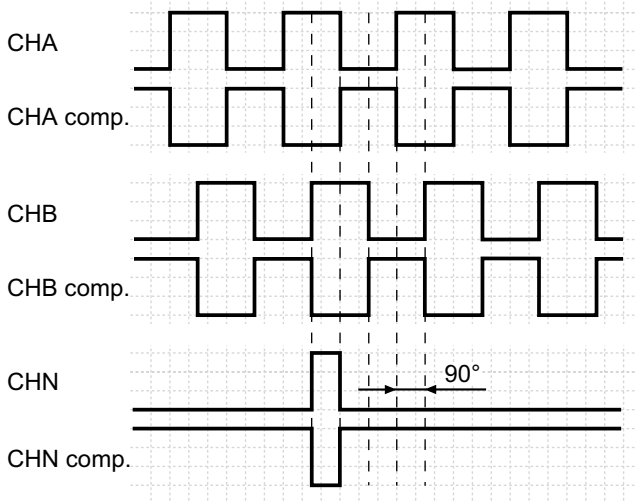
for connection reference -A

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

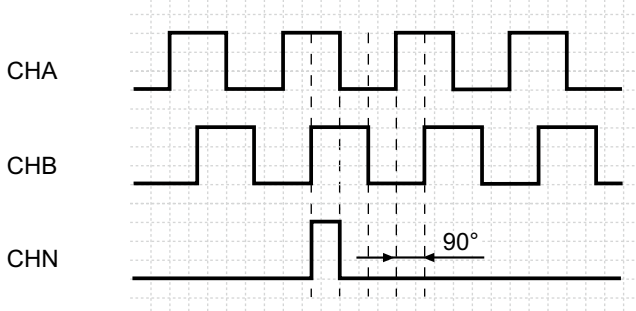
Counter clockwise rotating direction when looking at the flange.

05A

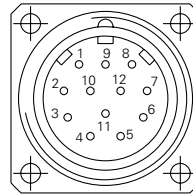


Counter clockwise rotating direction when looking at the flange.

24K



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



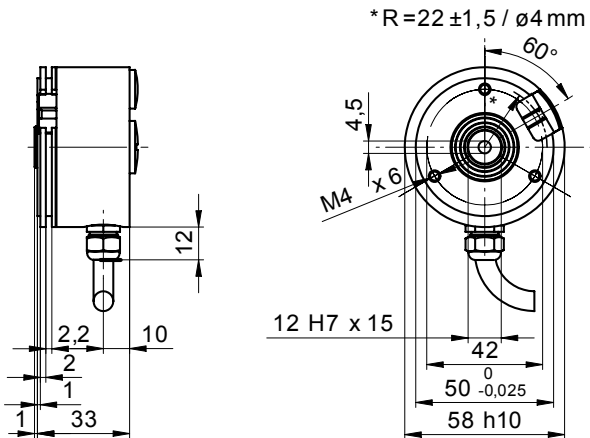
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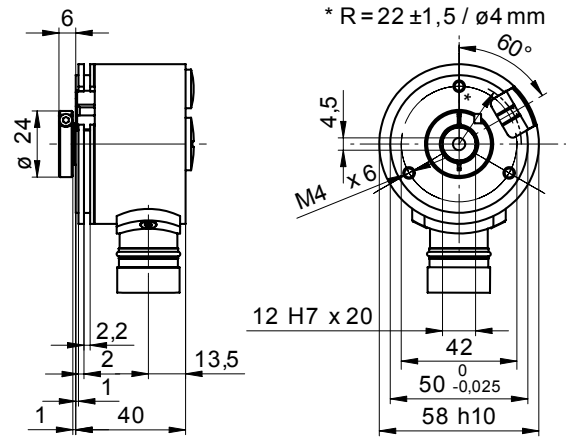
BHF, BHG - HighRes

Dimensions

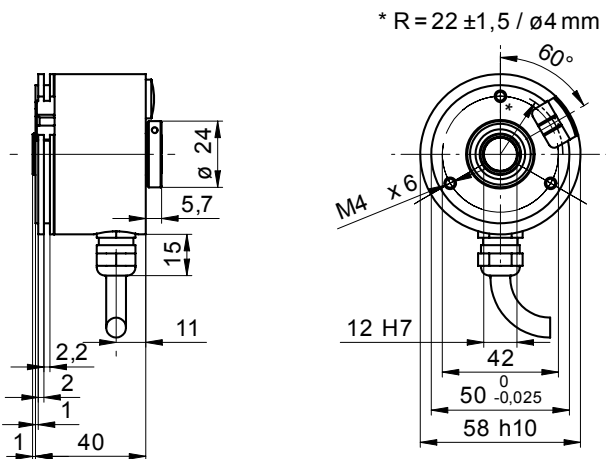
BHF HighRes cable radial



BHF HighRes connector output radial



BHG HighRes cable radial



BHG HighRes connector output radial

