

Incremental encoders

Blind or through hollow shaft $\varnothing 12$ mm
10...5000 pulses per revolution

BHF, BHG



BHF with blind hollow shaft

Features

- Encoder with blind or through hollow shaft $\varnothing 12$ mm
- Optical sensing
- Max. 5000 pulses per revolution
- Small profile depth
- Versatile mounting accessories

Technical data - electrical ratings

Voltage supply	5 VDC ± 10 % 10...30 VDC 4.5...30 VDC
Consumption w/o load typ.	80 mA (5 VDC) 180 mA (4.5 VDC) 60 mA (24 VDC)
Pulses per revolution	10...5000
Reference signal	Zero pulse, width 90°
Sensing method	Optical
Output frequency	≤ 750 kHz
Output signals	A 90° B, N + inverted
Output stage	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

Size (flange)	$\varnothing 58$ mm
Protection DIN EN 60529	IP 42, IP 65
Operating speed	≤ 12000 rpm (IP 42) ≤ 6000 rpm (IP 65)
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)
Materials	Housing: aluminium Housing: steel (connection -5) Flange: aluminium

BHG

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

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Part number

Blind hollow shaft

BHF 16. -

Connection
5 Cable 2 m, radial
A Connector M23, radial

Blind hollow shaft

12 ø12 mm, IP 42
B2 ø12 mm, IP 42, with clamping ring
E2 ø12 mm, IP 65, with clamping ring
L2 ø12 mm, IP 65

Pulse number - see table

Voltage supply / signals

05A 5 VDC / antivalent (TTL compatible)
24K 10...30 VDC / push-pull short-circuit proof
25W 4.5...30 VDC / push-pull antivalent short-circuit proof

Pulse number

10	100	360	1250	5000
30	120	500	2000	
50	200	1000	2500	
60	250	1024	3600	

Other pulse numbers on request.

Trigger level

Outputs 05A	Complem. 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
Outputs 25W	Push-pull complementary short-circuit protection
Output level High	>+Vs - 3.7 V (I = -30 mA)
Output level Low	<2.5 V (I = 30 mA)
Load High	<40 mA
Load Low	<40 mA

Through hollow shaft

BHG 16. -

Connection
5 Cable 2 m, radial
A Connector M23, radial

Through hollow shaft

B2 ø12 mm, IP 42, with clamping ring
E2 ø12 mm, IP 65, with clamping ring

Pulse number - see table

Voltage supply / signals

05A 5 VDC / antivalent (TTL compatible)
24K 10...30 VDC / push-pull short-circuit proof
25W 4.5...30 VDC / push-pull antivalent short-circuit proof

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 ø58 mm
10110616	Clamp set ø15 mm
10107540	Torque pin
10109520	Torque spring washer
10110574	Solid shaft reducer 12/6 mm
10112322	Solid shaft reducer 12/8 mm
10114472	Solid shaft reducer 12/10 mm

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Terminal assignment

Cable

for connection reference -5

05A, 25W

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

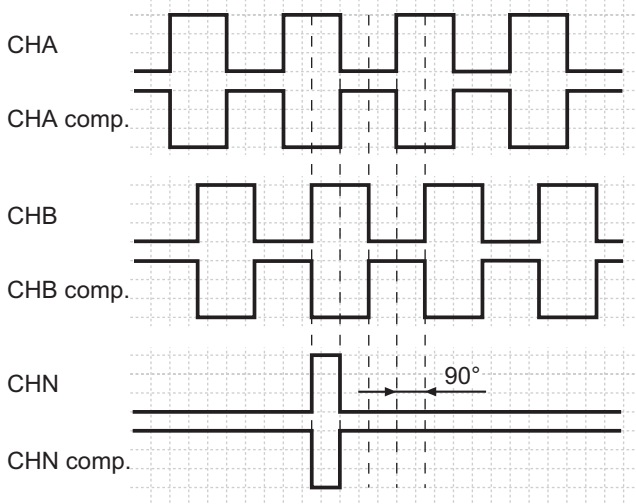
05A, 24K, 25W

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

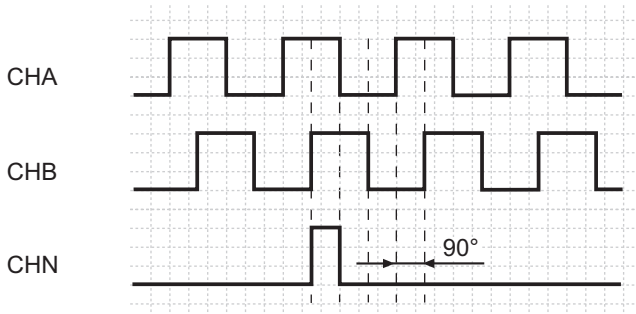
Counter clockwise rotating direction when looking at the flange.

05A, 25W

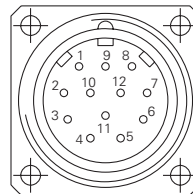


Counter clockwise rotating direction when looking at the flange.

24K



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



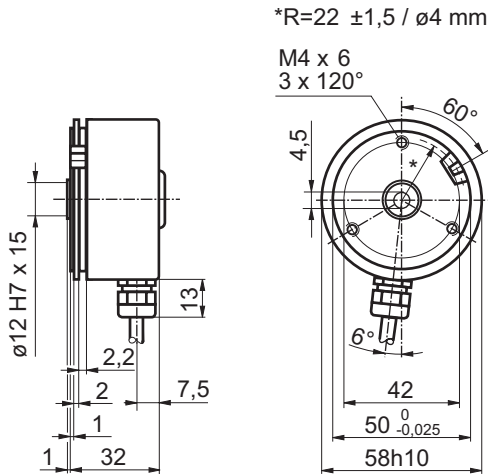
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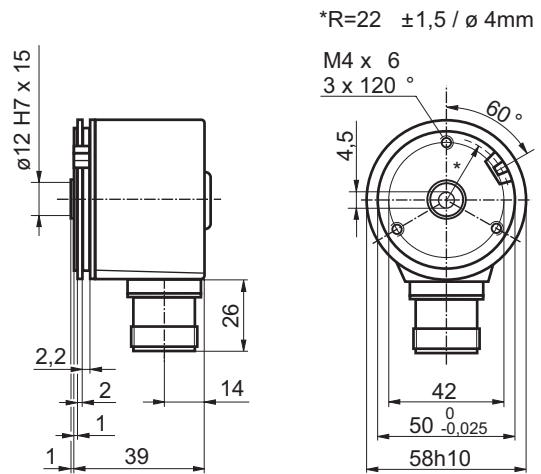
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Dimensions

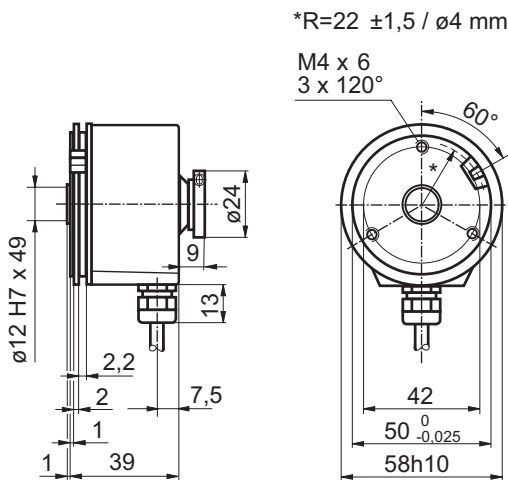
BHF cable radial



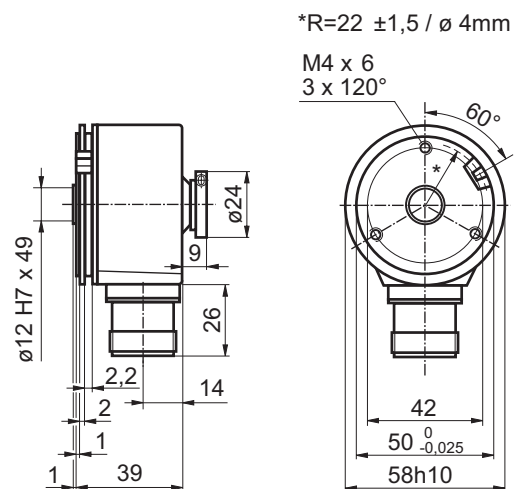
BHF connector output radial



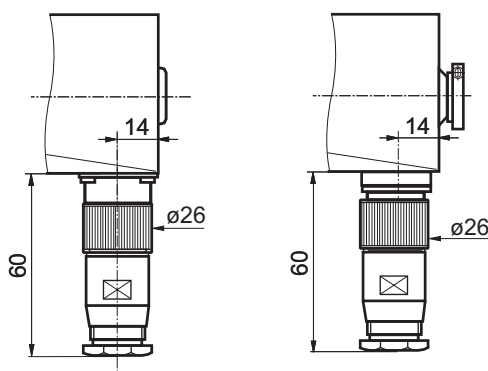
BHG cable radial



BHG connector output radial



BHF/BHG connector dimensions



BHF/BHG clamping ring

