

# Incremental hollow shaft encoder BHF/BHG high resolution

## features

- high resolution encoder
- optical sensing principle
- resolution up to 320'000 ppr
- internal interpolation, programmable
- small mounting depth
- hollow and through shaft  $\varnothing$  12 mm



BHF

BHG

## general data

voltage supply	5 VDC $\pm$ 10% <b>(05A)</b> 10 - 30 VDC <b>(24K)</b>
max. supply current no load	typ. 60 mA (at 5 VDC) <b>(05A)</b> typ. 40 mA (at 24 VDC) <b>(24K)</b>
max. measuring steps	1'280'000 steps at 320'000 ppr
pulse range	see order designation
pulse tolerance	$\pm$ 10% (switching frequency 320 kHz) $\pm$ 15% (switching frequency 540 kHz) $\pm$ 27% (switching frequency 1000 kHz) $\pm$ 44% (switching frequency 1300 kHz)
max. switching frequency	1,3 MHz <b>(05A)</b> 300 kHz <b>(24K)</b>
direction of rotation	looking at the flange and rotating in counter-clockwise direction, channel A leads channel B by 1/4 period (90°)

## mechanical data

max. revolutions mechanical	6'000 rpm
elektrical	6'000 rpm (pulse disc 2048) 3'000 rpm (pulse disc 5000)
moment of inertia rotor	BHF/BHG with clamping ring typ. $18,5 \times 10^{-7}$ kgm <sup>2</sup> BHF without clamping ring typ. $13,6 \times 10^{-7}$ kgm <sup>2</sup>
torque BHF	typ. 0,9 cNm IP 42 typ. 3,7 cNm IP 65
BHG	typ. 1,75 cNm IP 42 typ. 4,7 cNm IP 65 (3'000 rpm / 20 °C)
product life	depending on ambient conditions (typ. $10^9$ revolutions)
max. protection class	IP 65
material	aluminium
weight	approx. 300 g

## ambient conditions

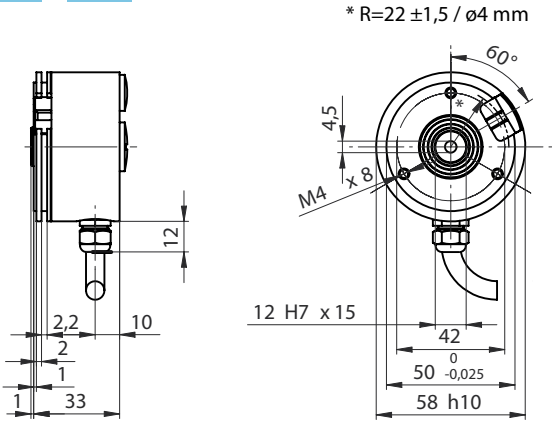
temperature range	-20...+85 °C
relative humidity	max. relative humidity 95% non condensing
vibration	IEC 60068-2-6 ( $\leq 100$ m/s <sup>2</sup> / 10 - 200 Hz)
shock	IEC 60068-2-27 ( $\leq 500$ m/s <sup>2</sup> / 11 ms)
noise immunity	EN 61000-6-2
emitted interference	EN 61000-6-3



**dimensions**

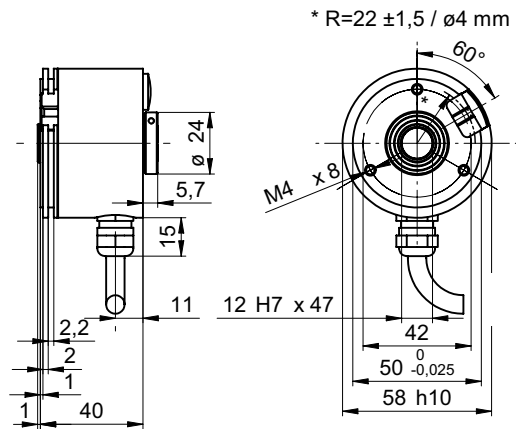
**BHF**

**-12 -5**

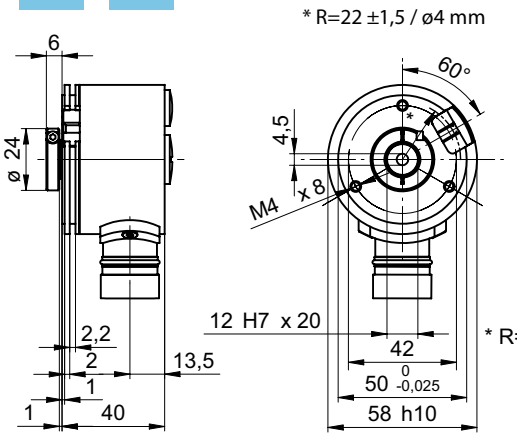


**BHG**

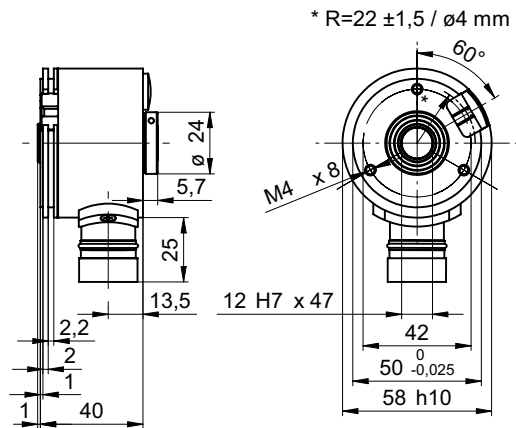
**-B2 -5**



**-B2 -A**



**-B2 -A**



# Incremental hollow shaft encoder BHF/BHG high resolution

## assignment cable

for connection reference **-5**

**05A** (5 VDC complementary)

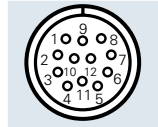
cable color	signal
brown	+Vs
green	CHA
red	CHA compl.
yellow	CHB
blue	CHB compl.
pink	CHN
grey	CHN compl.
white	0 V
screen	connected to connector housing
cable data	10 x 0,14 mm <sup>2</sup> , max. ext. ø 6,1 mm

**24K** (10 - 30 VDC push-pull, short-circuit protection)

cable color	signal
brown	+Vs
green	CHA
red	n.c.
yellow	CHB
blue	n.c.
pink	CHN
grey	n.c.
white	0 V
screen	connected to connector housing
cable data	10 x 0,14 mm <sup>2</sup> , max. ext. ø 6,1 mm

## assignment connector M23 male

for connection reference **-A**



**05A** (5 VDC complementary)

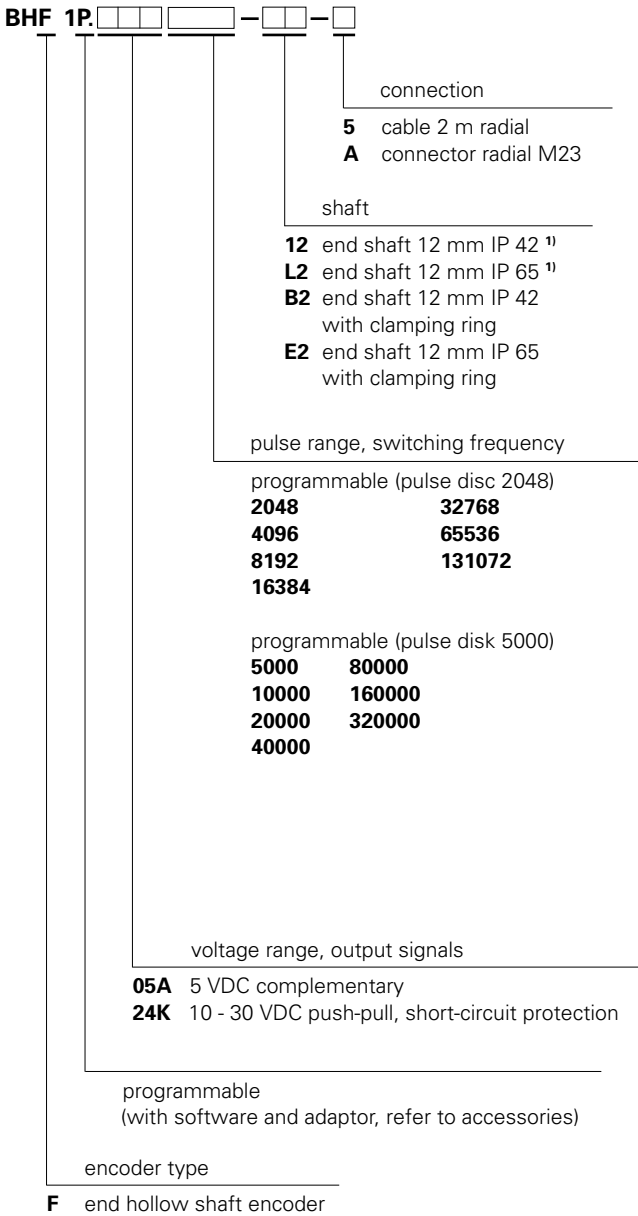
**24K** (10 - 30 VDC push-pull, short-circuit protection)

pin nr.	signals
1	CHA compl.
2	+Vs
3	CHN
4	CHN compl.
5	CHB
6	CHB compl.
7	n.c.
8	CHA
9	housing
10	0 V
11	0 V
12	+Vs

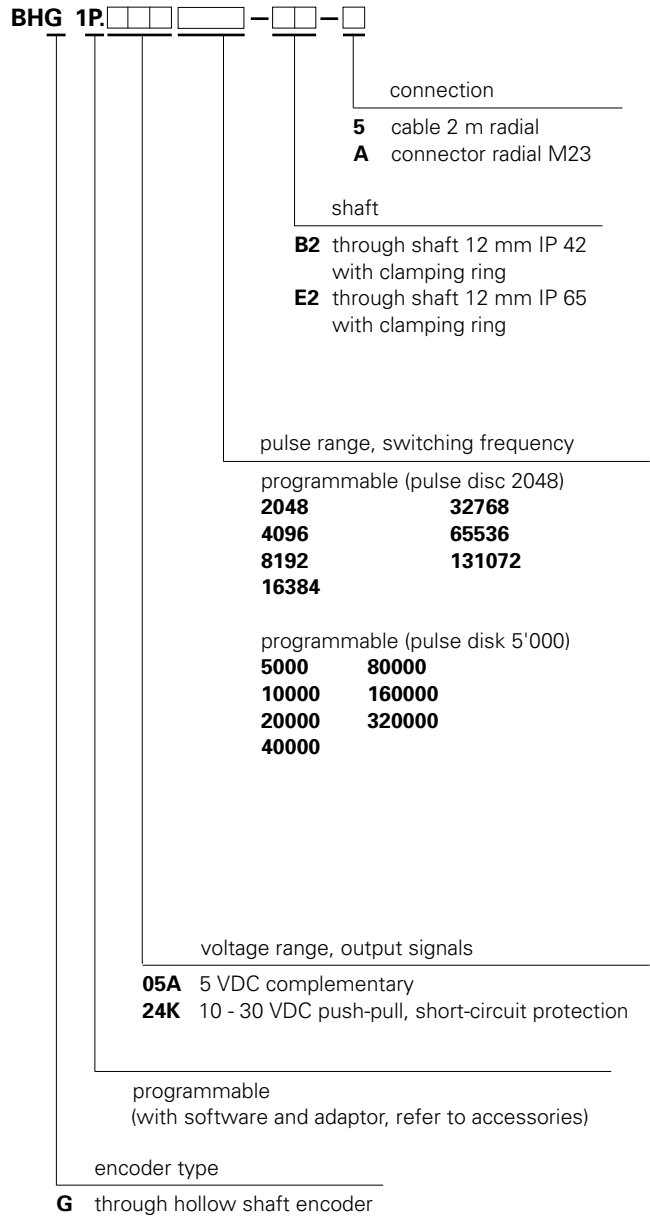
push-pull version **24K** without CHx complementary signals



## order designation BHF



## order designation BHG



<sup>1)</sup> shaft adapter must be ordered separately

Other versions on request.

### accessories

programming set	part nr. 161910
(more information see accessories on page 5.17)	
connector M23 female reference <b>-A</b>	
for <b>05A</b> and <b>24K</b>	part nr. 107687
spring plate set	part nr. 136635
shaft adapters	see chapter accessories
clamping ring set	
12 mm hollow shaft	part nr. 142556