

# Incremental hollow shaft encoders

## BHF/BHG

### Sine

#### features

- hollow shaft encoders with sine output
- end shaft mounting (BHF)
- through shaft mounting (BHG)
- various hollow shaft adapters
- small mounting depth

#### general data

|                                |                                                                                                  |
|--------------------------------|--------------------------------------------------------------------------------------------------|
| voltage supply                 | 5 VDC $\pm 5\%$                                                                                  |
| max. supply current<br>no load | typ. 100 mA                                                                                      |
| max. measuring steps           | 200'000 steps with<br>electronic interpolation 10-fold and<br>4-fold evaluation (see page 4. 18) |
| pulse range                    | see order designation                                                                            |
| max. switching frequency       | 160 kHz                                                                                          |

#### mechanical data

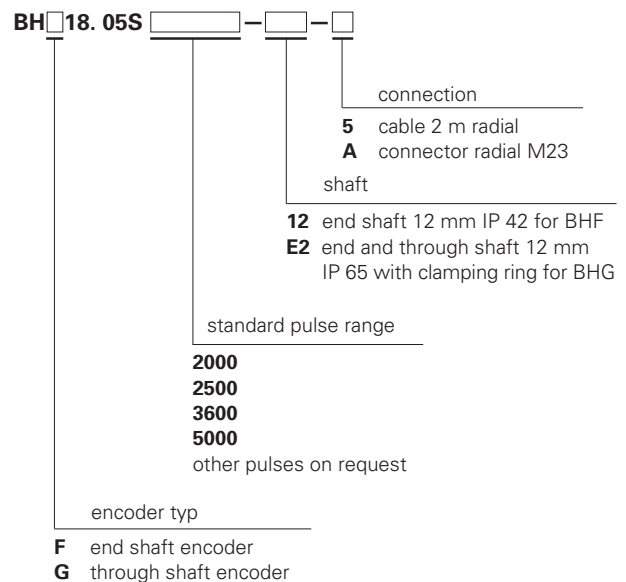
|                       |                                                                                              |
|-----------------------|----------------------------------------------------------------------------------------------|
| max. revolutions      | 12'000 rpm (IP 42)<br>6'000 rpm (IP 65)                                                      |
| moment of inertia     | BHF typ. $13,6 \times 10^{-7} \text{ kgm}^2$<br>BHG typ. $18,5 \times 10^{-7} \text{ kgm}^2$ |
| torque                | BHF typ. 0,93 cNm<br>BHG typ. 3,7 cNm<br>(3000 rpm / 20 °C)                                  |
| product life          | depending on ambient conditions<br>(typ. $10^9$ revolutions)                                 |
| max. protection class | IP 65                                                                                        |
| material              | housing: aluminum<br>with connection ref. <b>-5</b> : steel<br>flange: aluminum              |
| weight                | approx. 300 g                                                                                |

#### ambient conditions

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



#### order designation



Other versions on request.

#### accessories

|                                                 |                         |
|-------------------------------------------------|-------------------------|
| connector M23 female reference <b>-A</b>        |                         |
| 12-pin straight, IP 67                          | part nr. 116717         |
| cable with connector M23 female (pre-assembled) |                         |
| 2 m                                             | part nr. 130368         |
| 5 m                                             | part nr. 130369         |
| clamp set                                       | part nr. 110616         |
| torque pin                                      | part nr. 107540         |
| torque spring <sup>1)</sup>                     | part nr. 109520         |
| spring plate set                                | part nr. 136635         |
| couplings                                       | see chapter accessories |
| clamping ring set                               |                         |
| 12 mm hollow shaft                              | part nr. 142556         |

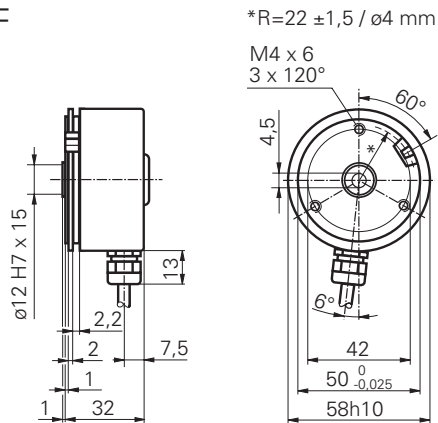
<sup>1)</sup> encoder is delivered with fixed rubber torque spring



## dimensions and connection dimensions

## BHF

-5



## assignment cable

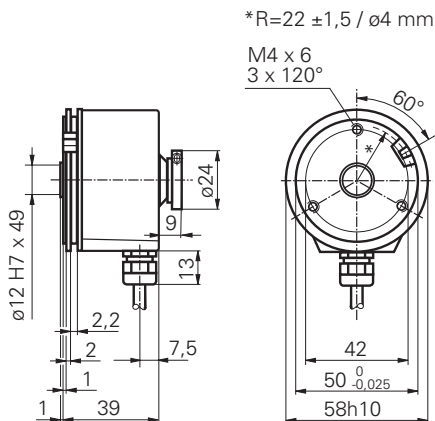
for connection reference -5

05S (5 VDC sine)

| cable color | signals                                      |
|-------------|----------------------------------------------|
| brown       | As+                                          |
| green       | As-                                          |
| red         | Ns+                                          |
| yellow      | n.c.                                         |
| blue        | +Vs                                          |
| pink        | Bs-                                          |
| grey        | Bs+                                          |
| white       | 0 V                                          |
| black       | Ns-                                          |
| screen      | connected to flange                          |
| cable data  | 9 x 0,14 mm <sup>2</sup> , max. ext ø 5,7 mm |

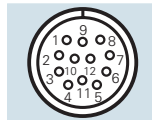
## BHG

-5



## assignment connector M23 male

for connection reference-A

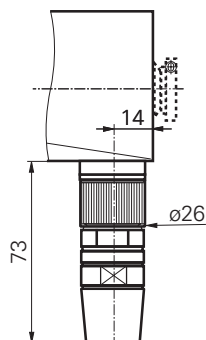
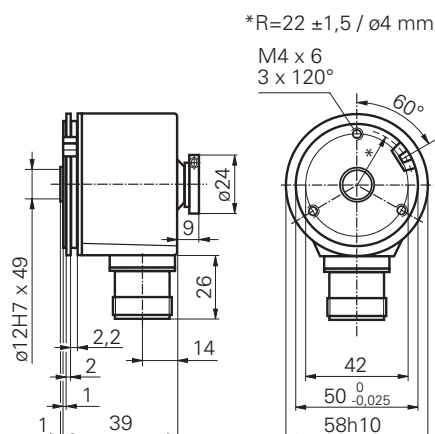


05S (5 VDC sine)

| pin number | signals |
|------------|---------|
| 1          | Bs-     |
| 2          | +Vs     |
| 3          | Ns+     |
| 4          | Ns-     |
| 5          | As+     |
| 6          | As-     |
| 7          | n.c.    |
| 8          | Bs+     |
| 9          | n.c.    |
| 10         | 0 V     |
| 11         | 0 V     |
| 12         | +Vs     |

## BHF/BHG

-A



## Note

Mounting drawings see end of chapter.