

# Magnetic absolute single-turn encoder

## BMSH – MAGRES

### SSI

#### features

- miniaturized single-turn hollow shaft encoder up to 10 bit
- SSI interface
- end shaft mounting up to  $\varnothing$  12mm
- zero-point programmable



#### general data

voltage supply	5 VDC $\pm$ 5% <b>(05C)</b> 10 - 30 VDC <b>(24C)</b>
max. supply current no load	typ. 110 mA (at 5 VDC) <b>(05C)</b> typ. 40 mA (at 24 VDC) <b>(24C)</b>
output circuit	SSI, RS 422
signal code	Gray code or binary code
max. resolution	10 bit
max error limit	$\pm$ 1°
repeatability	0,3°
max. clock frequency	1 MHz
zero setting input	zero setting: < 0,4 V, min. 2 ms off state: voltage supply or open
direction of rotation	looking at the flange, position counts up as the shaft rotates clockwise (CW)

#### mechanical data

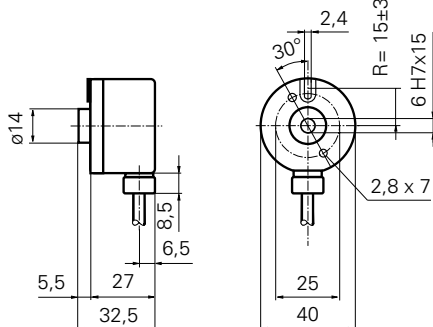
max. revolutions	6'000 rpm
moment of inertia	typ. $3 \times 10^{-7}$ kgm <sup>2</sup>
torque	typ. 0,75 cNm (3'000 rpm / 20 °C)
product life	depending on ambient conditions (typ. 10 <sup>9</sup> revolutions)
max. protection class	IP 65
material	housing: polyamide flange: aluminum
weight	approx. 120 g

#### ambient conditions

temperature range	-20...+85 °C
relative humidity	max. 95%
vibration (sine)	IEC 60068-2-6 ( $\leq$ 300 m/s <sup>2</sup> / 10 - 2'000 Hz) 150 min per axis
vibration (random)	IEC 60068-2-64 ( $\leq$ 0,1 g <sup>2</sup> /Hz / 20 - 2'000 Hz) 30 min per axis
shock	IEC 60068-2-27 ( $\leq$ 1'000 m/s <sup>2</sup> / 6 ms) 10 pulses per axis and direction
bump	IEC 60068-2-29 ( $\leq$ 1'000 m/s <sup>2</sup> / 2 ms) 4'000 pulses per axis and direction
noise immunity	EN 61000-6-2
emitted interference	EN 61000-6-3

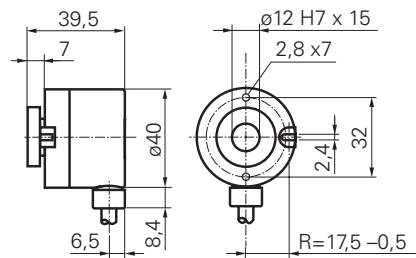
**dimensions and connection dimensions**

**-5** with shaft reference **-E6**

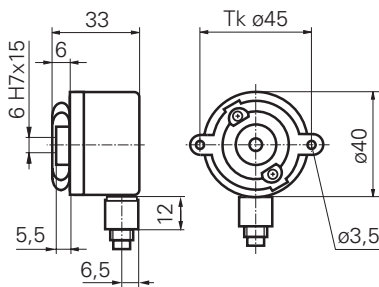


**dimensions and connection dimensions**

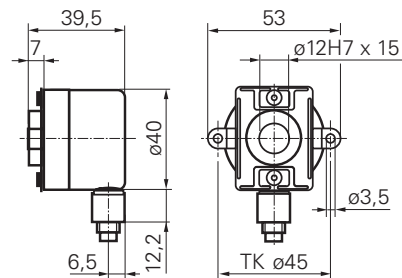
**-5** with shaft reference **-E2**



**-9** with shaft reference **-E6** and spring plate

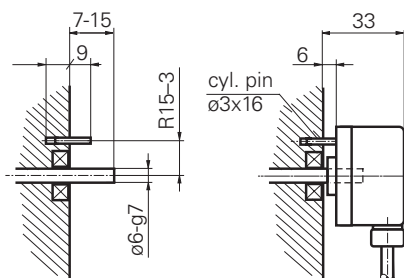


**-9** with shaft reference **-E2** and spring plate



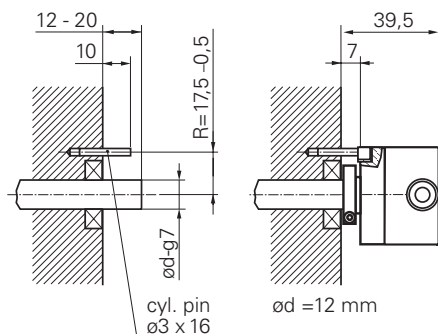
**mounting**

**-E6** end shaft 6 mm no spring plate

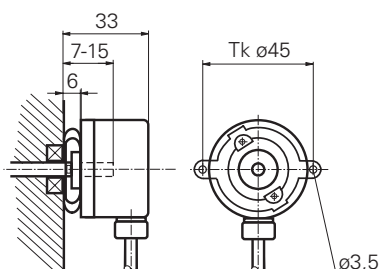


**mounting**

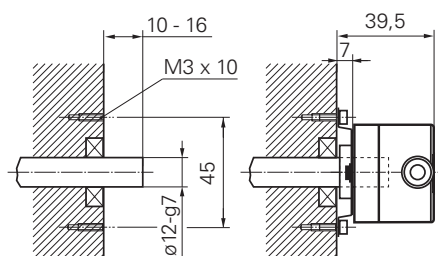
**-E2** end shaft 12 mm no spring plate



end shaft 6 mm with spring plate



end shaft 12 mm with spring plate



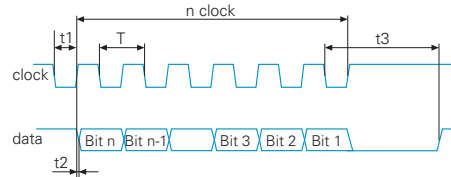
# Magnetic absolute single-turn encoder BMSH – MAGRES SSI

## assignment cable

for connection reference **-4** and **-5**

cable color	signals	description
brown	+Vs	voltage supply
white	0 V	voltage supply
grey	Data+	data signal
pink	Data-	data signal
green	Clock+	clock signal
yellow	Clock-	clock signal
blue	Zero	zero setting input
red	d.u.	do not use
screen		housing
cable data		8 x 0,14 mm <sup>2</sup>

## read out of position values



pulse time:

$T = 1 \mu\text{s to } 10 \mu\text{s} / t1 = 0,5 \text{ to } 5 \mu\text{s}$

$t2 < 0,2 \mu\text{s} / t3 > 12 \mu\text{s to } 25 \mu\text{s}$

## assignment connector M9 male

for connection reference **-9**



pin number	signals
1	0 V
2	+Vs
3	Clock+
4	Clock-
5	Data+
6	Data-
7	Zero
8	d.u.



**SSI**

**order designation**

**BMSH 40D1**  / **00**

connection

- 4** cable 1 m axial
- 5** cable 1 m radial
- 9** connector radial

shaft

- E6** end shaft 6 mm IP 65 with clamping ring
- E2** end shaft 12 mm IP 65 clamping ring

resolution

- 10** 10 bit

voltage range, output signals

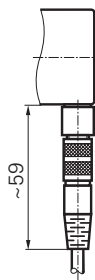
- 05C** 5 VDC SSI
- 24C** 10 - 30 VDC SSI

signal code

- N** binary code
- G** Gray code

**2**

**mounting connector**



**accessories**

cable with connector M9 female (pre-assembled) ref. <b>-9</b>	
2 m	part nr. 123168 (ES62FB2)
5 m	part nr. 123169 (ES62FB5)
connector M9 female ref. <b>-9</b>	part nr. 132983
spring plate set (round)	
for < 8 mm end shaft	part nr. 158423
spring plate set (square)	
for ≥ 8 mm end shaft	part nr. 158424
clamp set	part nr. 106004
couplings	see chapter accessories