

# Magnetic absolute multi-turn shaft encoder

## BMMV – MAGRES

### SSI

#### features

- miniature multi-turn encoder / SSI
- magnetic sensing principle
- resolution: single-turn 12 bit and multi-turn 13 bit
- housing  $\varnothing$  42 mm
- high resistance against shock and vibration
- zero setting input
- shaft  $\varnothing$  10 mm or 6 mm

#### general data

voltage supply	5 VDC $\pm$ 10% <b>(05C)</b> 10 - 30 <b>(24C)</b>
max. supply current no load	typ. 100 mA (at 5 VDC) <b>(05C)</b> typ. 50 mA (at 24 VDC) <b>(24C)</b>
output circuit	SSI, RS 422
signal code	Gray or binary code
max. revolution single-turn	12 bit (1 step= 5'16'')
multi-turn	13 bit (8'192 revolutions)
max. error limit	$\pm 1^\circ$
repeatability	0,3°
max. clock frequency	1 MHz
input signal	clock input, zero (zero setting: < 0,4 V, > 2 ms off state: 3,3 V or open)
counter buffering	with Lithium cell typ. 19 years
direction of rotation	looking at the flange, position counts up as the shaft rotates clockwise (CW)

#### mechanical data

max. revolutions	12'000 rpm (mech.) 6'000 rpm (electr.)
moment of inertia	typ. $12 \times 10^{-7}$ kgm <sup>2</sup>
torque	typ. 0,93 cNm (3'000 rpm / 20 °C / IP 42)
product life	depending on ambient conditions (typ. $10^9$ revolutions.)
max. shaft load	axial: 10 N      radial: 25 N
max. protection class	IP 65
material	housing: steel flange: aluminum
weight	approx. 190 g



#### order designation

**BMMV 42S1**   **12/13**

connector

**5** cable 1 m radial  
**N** M12 connector radial  
shaft

**C6** shaft 6 mm IP 65  
**C0** shaft 10 mm IP 65

resolution multi-turn

**13** 13 bit  
resolution single-turn

**12** 12 bit  
voltage range, output signals

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

signal code

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

#### ambient conditions

temperature range	-20...+85 °C
relative humidity	max. relative humidity 95%
vibration	IEC 60068-2-6 ( $\leq 300$ m/s <sup>2</sup> / 10 - 2'000 Hz)
shock	IEC 60068-2-27 ( $\leq 1'000$ m/s <sup>2</sup> / 6 ms)
noise immunity	EN 61000-6-2
emitted interference	EN 61000-6-3

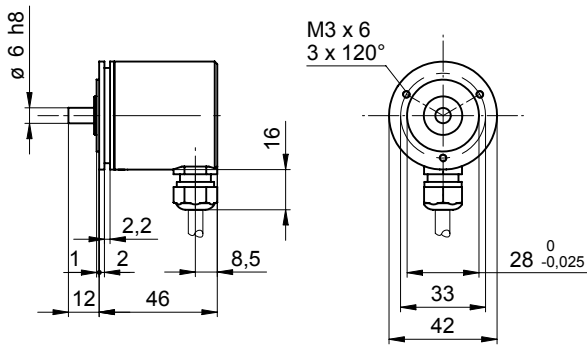
#### accessories

clamp set	part Nr. 110616
shaft adapter	see chapter accessories



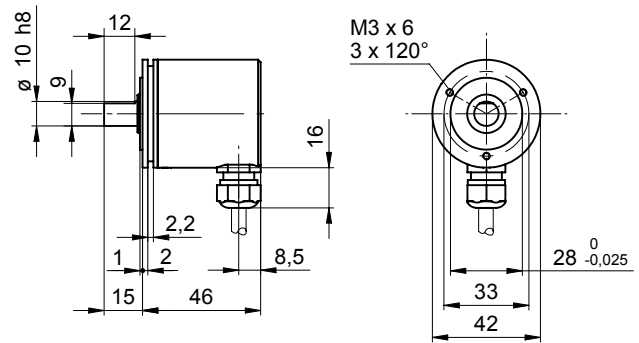
**dimensions (C6)**

**-5**

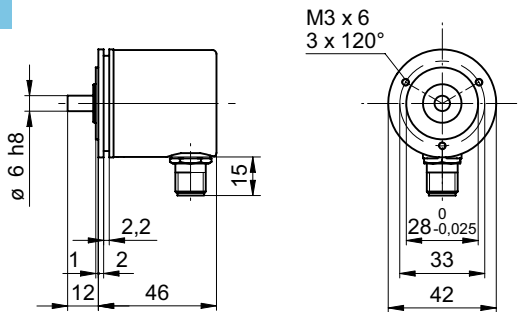


**dimensions (C0)**

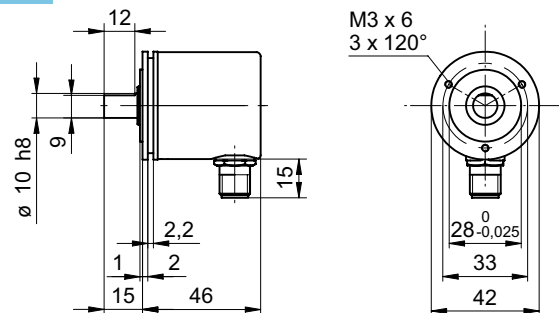
**-5**



**-N**



**-N**



**3**

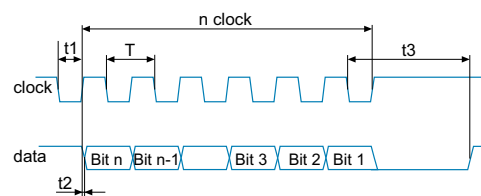
**Note**

Mounting drawings see end of chapter.

**SSI data output and clock input**

see page 2.03 chapter absolute single-turn encoders

**read out of position values**



pulse times:

$T = 1 \mu\text{s to } 10 \mu\text{s} / t_1 = 0,5 \mu\text{s to } 5 \mu\text{s}$

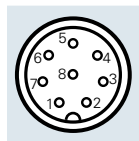
$t_2 < 0,2 \mu\text{s} / t_3 > 12 \mu\text{s to } 25 \mu\text{s}$

**assignment cable**

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

**assignment connector M12**

for connection reference **-N**



pin	signal	description
1	0 V	voltage supply
2	+Vs	voltage supply
3	clock+	clock input
4	clock-	clock input
5	data+	data line
6	data-	data line
7	zero	zero setting input
8	d.u.	do not use