

Absolute encoders - SSI

Solid shaft max. $\varnothing 8$ mm

Magnetic single- or multiturn encoders 12 bit ST / 13 bit MT

BMSV 30R, BMMV 30R SSI - MAGRES



BMMV 30R SSI with shaft

Features

- Mini encoder single- or multiturn / SSI
- Magnetic sensing
- Resolution: singleturn 12 bit, multiturn 13 bit
- Robust steel housing $\varnothing 30$ mm
- High resistance to shock and vibrations
- Operating temperature $-40...+65$ °C

Technical data - electrical ratings

Voltage supply	5 VDC ± 10 % 10...30 VDC
Consumption typ.	100 mA (5 VDC, w/o load) 50 mA (24 VDC, w/o load)
Initializing time typ.	70 ms after power on
Interface	SSI
Steps per turn	4096 / 12 bit
Absolute accuracy	± 1 °
Sensing method	Magnetic
Code	Gray or binary
Code sequence	CW: ascending values with clockwise sense of rotation; looking at flange
Inputs	SSI clock Zero setting input
Output stages	SSI data: linedriver RS485
Interference immunity	DIN EN 61000-6-2
Emitted interference	DIN EN 61000-6-3
Approval	UL approval / E217823
BMSV 30R	
Function	Singleturn
BMMV 30R	
Function	Multiturn
Number of turns	8192 / 13 bit

Technical data - mechanical design

Size (flange)	$\varnothing 30$ mm
Shaft type	$\varnothing 6$ mm solid shaft $\varnothing 8$ mm solid shaft
Protection DIN EN 60529	IP 67
Operating speed	≤ 6000 rpm
Operating torque typ.	0.0011 Nm
Admitted shaft load	≤ 30 N axial ≤ 50 N radial
Materials	Housing: steel zinc-coated Flange: stainless steel 1.4305
Operating temperature	$-40...+65$ °C
Relative humidity	95 %
Resistance	DIN EN 60068-2-6 Vibration 30 g, 10-2000 Hz DIN EN 60068-2-27 Shock 500 g, 6 ms
Connection	Connector M12, 8-pin Cable 2 m
BMSV 30R	
Weight approx.	100 g
BMMV 30R	
Weight approx.	110 g

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Part number

Singleturn

BMSV 30R6 12/00

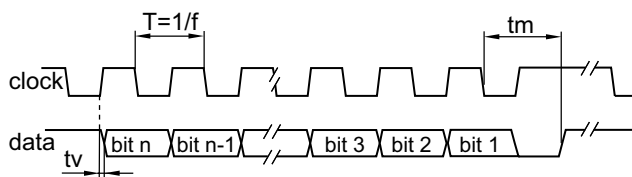
4	Connection Cable 2 m, axial
5	Connection Cable 2 m, radial
T	Connector M12, 8-pin, axial
N	Connector M12, 8-pin, radial
<u>Solid shaft</u>	
N6	$\varnothing 6$ mm, IP 67
N8	$\varnothing 8$ mm, IP 67
<u>Resolution</u>	
12/00	12 bit singleturn
<u>Voltage supply / signals</u>	
05C	5 VDC / SSI
24C	10...30 VDC / SSI
<u>Code</u>	
G	Gray code
N	Binary code

Multiturn

BMMV 30R6 12/13

4	Connection Cable 2 m, axial
5	Connection Cable 2 m, radial
T	Connector M12, 8-pin, axial
N	Connector M12, 8-pin, radial
<u>Solid shaft</u>	
N6	$\varnothing 6$ mm, IP 67
N8	$\varnothing 8$ mm, IP 67
<u>Resolution</u>	
12/13	12/13 bit single-/multiturn
<u>Voltage supply / signals</u>	
05C	5 VDC / SSI
24C	10...30 VDC / SSI
<u>Code</u>	
G	Gray code
N	Binary code

Data transfer



Clock frequency f	100...1000 kHz
Duty cycle of T	40...60 %
Delay time tv	200 ns
Monoflop time tm	20 μ s + T/2

Trigger level

Control inputs	Input circuit
Input level Low	<0,4 V (>2 ms)
Input level High	+Vs or open

Accessories

Connectors and cables

10146775 Female connector M12, 8-pin, straight, without cable

Mounting accessories

10106004 Clamp set $\varnothing 10$ mm

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Terminal significance

+Vs	Encoder supply voltage.
0 V	Encoder ground connection relating to +Vs.
Data+	Positive, serial data output of differential linedriver.
Data-	Negative, serial data output of differential linedriver.
Clock+	Positive SSI clock input. Clock+ together with Clock- forms a current loop. A current of approx. 7 mA towards Clock+ input means logic 1 in positive logic.
Clock-	Negative SSI clock input. Clock- together with Clock+ forms a current loop. A current of approx. 7 mA towards Clock- input means logic 0 in positive logic.
Zero	Input for setting a zero point anywhere within the encoder resolution. The zero setting operation is triggered by a Low impulse. Connect to +Vs after setting operation for maximum interference immunity. Impulse duration >2 ms.
Rot. direction	Ascending position values when looking at the flange and rotating the shaft clockwise.

Terminal assignment

Cable

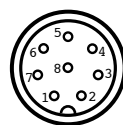
for connection references **-4** and **-5**

Core colour	Signals	Description
brown	+Vs	Supply voltage
white	0 V	Supply voltage
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	connected to housing	
Cable data		8 x 0.14 mm ²

Connector M12 male

for connection reference **-N** and **-T**

Connector	Signals	Description
Pin 1	0 V	Supply voltage
Pin 2	+Vs	Supply voltage
Pin 3	Clock+	Clock signal
Pin 4	Clock-	Clock signal
Pin 5	Data+	Data signal
Pin 6	Data-	Data signal
Pin 7	Zero	Zero setting input
Pin 8	d.u.	do not use



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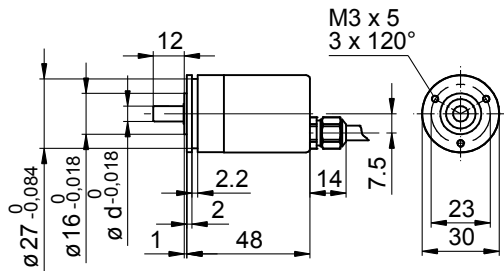
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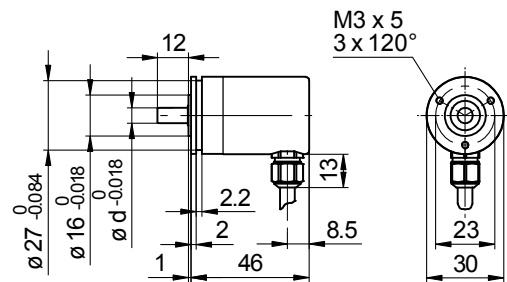
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Dimensions

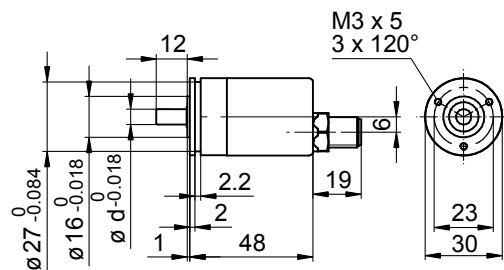
BMSV/BMMV 30R SSI, cable axial



BMSV/BMMV 30R SSI, cable radial



BMSV/BMMV 30R SSI, connector axial



BMSV/BMMV 30R SSI, connector radial

