

Absolute encoders - SSI

End shaft max. $\varnothing 6$ mm

Magnetic single- or multiturn encoders 10 bit ST / 15 bit MT

BMSH 30, BMMH 30 SSI - MAGRES



BMMH 30 SSI with end shaft

Features

- Mini encoder single- or multiturn / SSI
- Magnetic sensing
- Resolution: singleturn 10 bit, multiturn 15 bit
- Housing $\varnothing 30$ mm
- High resistance to shock and vibrations
- Reset input

Technical data - electrical ratings

Voltage supply	5 VDC ± 10 % 10...30 VDC
Consumption w/o load (typ.)	100 mA (5 VDC) 50 mA (24 VDC)
Initializing time (typ.)	70 ms after power on
Initializing time	≤ 70 ms after power on
Interface	SSI
Steps per turn	1024 / 10 bit
Absolute accuracy	$\pm 1^\circ$
Sensing method	Magnetic
Code	Gray or binary
Code sequence	CW: ascending values with clockwise sense of rotation (looking at flange)
Inputs	SSI clock Reset input
Output circuit	SSI data: linedriver RS485
Interference immunity	DIN EN 61000-6-2
Emitted interference	DIN EN 61000-6-3
Approval	UL approval / E217823

BMSH 30

Function	Singleturn
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BMMH 30

Function	Multiturn
Number of turns	32768 / 15 bit

Technical data - mechanical design

Housing	$\varnothing 30$ mm
Shaft	$\varnothing 4$ mm end shaft $\varnothing 6$ mm end shaft
Protection DIN EN 60529	IP 65
Operating speed	≤ 6000 rpm
Operating torque typ.	0.0075 Nm
Materials	Housing: steel Flange: aluminium
Operating temperature	$-20 \dots +85^\circ\text{C}$
Relative humidity	95 %
Resistance	DIN EN 60068-2-6 Vibration 30 g, 10-2000 Hz DIN EN 60068-2-27 Shock 100 g, 6 ms
Connection	Connector or cable

BMSH 30

Weight approx.	60 g
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BMMH 30

Weight approx.	70 g
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Part number

Singleturn

BMSH 30D1 10/00

				<u>Connection</u>
			4	Cable 1 m, axial
			5	Cable 1 m, radial
			6	Connector M9, axial
			9	Connector M9, radial
				<u>Shaft</u>
		P4		End shaft ø4 mm, IP 42, with clamping ring
		P6		End shaft ø6 mm, IP 65, with clamping ring
				<u>Resolution</u>
		10/00		10 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

Clock frequency f 100...1000 kHz

Scan ratio of T 40...60 %

Time lag t_v 200 ns

Monoflop time t_m 20 μ s + T/2

Multiturn

BMMH 30D1 10/15

				<u>Connection</u>
			4	Cable 1 m, axial
			5	Cable 1 m, radial
			6	Connector M9, axial
			9	Connector M9, radial
				<u>Shaft</u>
		P4		End shaft ø4 mm, IP 42, with clamping ring
		P6		End shaft ø6 mm, IP 65, with clamping ring
				<u>Resolution</u>
		10/15		10/15 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

Accessories

Connectors and cables

10132983	Female connector M9, 8-pin, straight
10123168	Female connector M9, 8-pin, straight, 2 m cable
10123169	Female connector M9, 8-pin, straight, shielded, 5 m cable

Mounting accessories

10164796	Set of spring coupling
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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

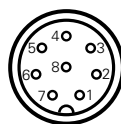
for connection references **-4** and **-5**

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 M9 male

for connection references **-6** and **-9**

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



Trigger level

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

Absolute encoders - SSI

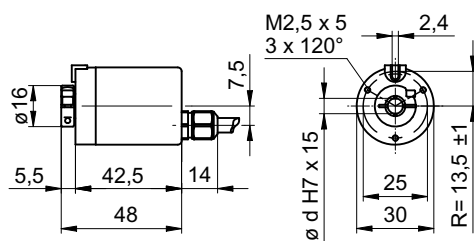
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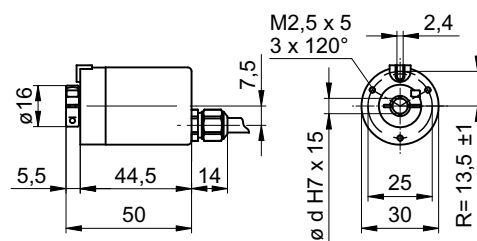
BMSH 30, BMMH 30 SSI - MAGRES

Dimensions

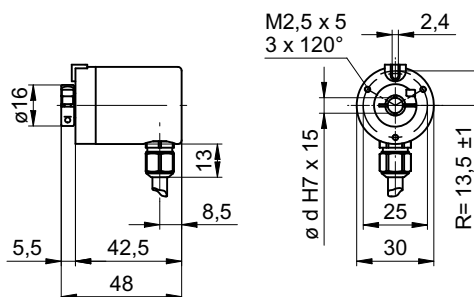
BMSH 30 SSI, cable axial



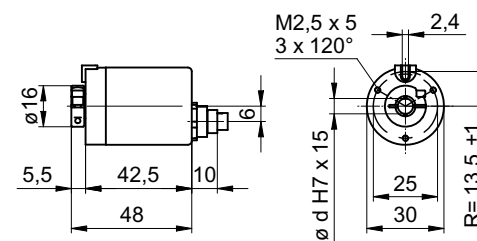
BMMH 30 SSI, cable axial



BMSH/BMMH 30, cable radial



BMSH/BMMH 30, connector output axial



BMSH/BMMH 30, connector output radial

