

# Absolute encoders - bus interfaces

Blind hollow shaft  $\varnothing 12$  mm

Magnetic single- or multiturn encoders 12 bit ST / 18 bit MT, CANopen®

## BMSH 42, BMMH 42 CANopen® - MAGRES



BMMH 42 CANopen® with blind hollow shaft

### Features

- Mini encoder single- or multiturn / CANopen®
- Magnetic sensing
- Resolution: singleturn 12 bit, multiturn 18 bit
- Housing  $\varnothing 42$  mm
- Integrated fieldbus interface
- High resistance to shock and vibrations
- Resolution and zero point programmable

### Technical data - electrical ratings

Voltage supply	10...30 VDC
Consumption typ.	100 mA (24 VDC, w/o load)
Initializing time typ.	170 ms after power on
Interface	CANopen®
Profile conformity	CANopen® CiA DSP 301 4.01, DSP 305 V1.0, DSP 406 V3.0
Steps per turn	$\leq 4096$ / 12 bit
Absolute accuracy	$\pm 1^\circ$
Sensing method	Magnetic
Code	Binary
Code sequence	CW default, programmable
Interference immunity	DIN EN 61000-6-2
Emitted interference	DIN EN 61000-6-3
Programmable parameters	Operating modes Total resolution Scaling Rotation speed monitoring
Diagnostic functions	Position or parameter error Multiturn sensing
Approval	UL approval / E217823
<b>BMSH 42</b>	
Function	Singleturn
<b>BMMH 42</b>	
Function	Multiturn
Number of turns	$\leq 262144$ / 18 bit

### Technical data - mechanical design

Size (flange)	$\varnothing 42$ mm
Shaft type	$\varnothing 12$ mm (blind hollow shaft)
Protection DIN EN 60529	IP 42, IP 65
Operating speed	$\leq 12000$ rpm (mechanical) $\leq 6000$ rpm (electric)
Operating torque typ.	0.0093 Nm
Materials	Housing: steel Flange: aluminium
Operating temperature	-20...+85 °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
Weight approx.	190 g
Connection	Connector M12, 5-pin Cable



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### Terminal significance

+Vs	Encoder supply voltage.
0 V	Encoder ground connection relating to +Vs.
CAN_L	CAN bus signal (dominant Low).
CAN_H	CAN bus signal (dominant High).
CAN_GND	GND relating to CAN interface.

### CANopen® features

Bus protocol	CANopen®
Device profile	CANopen® - CiA DSP 406, V 3.0 (Device Class 2, CAN 2.0B)
Operating modes	- Event-triggered / Time-triggered - Remotely-requested - Sync (cyclic) / Sync (acyclic)
Preset	Parameter for setting the encoder to a requested position value assigned to a defined shaft position of the system. The offset of encoder zero point and mechanical zero point is stored in the encoder.
Rotating direction	Parameter for defining the rotating direction in which there have to be ascending or descending position values. Default setting: Ascending position values when looking at the flange and rotating the shaft clockwise.
Scaling	Parameter defining the steps per turn as well as the total resolution.
Diagnosis	The encoder supports the following error warnings: - Position and parameter error - Lithium battery voltage (multiturn)
Node Monitoring	Heartbeat or Nodeguarding
Default	50 kbit/s, Node ID 1

### Terminal assignment

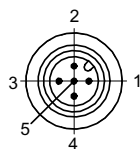
**Cable**  
for connection reference **-5**

Core colour	Signals	Description
brown	+Vs	Supply voltage
white	0 V	Supply voltage
green	CAN_H	Bus (dominant High)
yellow	CAN_L	Bus (dominant Low)
grey	CAN_GND	CAN Ground
pink	n.c.	–
blue	d.u.	do not use
red	d.u.	do not use
Screen	connected to housing	
Cable data		8 x 0,14 mm <sup>2</sup>

### Connector M12 male

for connection reference **-N**

Connector	Signals	Description
Pin 1	n.c.	–
Pin 2	+Vs	Supply voltage
Pin 3	CAN_GND	CAN Ground / 0 V
Pin 4	CAN_H	Bus (dominant High)
Pin 5	CAN_L	Bus (dominant Low)



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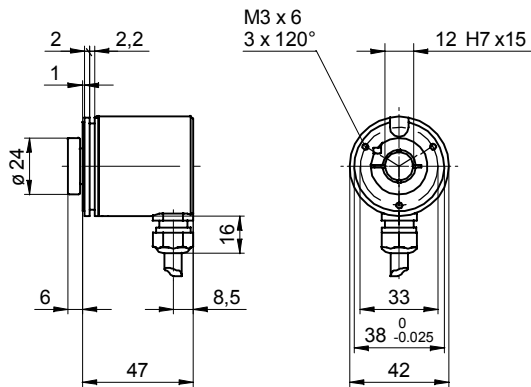
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### Dimensions

BMSH/BMMH 42 CANopen® cable radial



BMSH/BMMH 42 CANopen® connector output radial

