Absolute encoders - bus interfaces

Solid shaft max. ø10 mm

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

BMSV 42, BMMV 42 CANopen® - *MAGRES*

BMMV 42 CANopen® with shaft

Features

- **Mini encoder single- or multiturn / CANopen®**
- **Magnetic sensing**
- **Resolution: singleturn 12 bit, multiturn 18 bit**
- **Housing ø42 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	≤4096 / 12 bit
Absolute accuracy	±1 °
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
BMSV 42	
Function	Singleturn
BMMV 42	
Function	Multiturn
Number of turns	≤262144 / 18 bit

Technical data - mechanical design

Size (flange)	ø42 mm
Shaft type	ø6 mm solid shaft ø10 mm solid shaft
Protection DIN EN 60529	IP 65
Operating speed	≤12000 rpm (mechanical) ≤6000 rpm (electric)
Admitted shaft load	≤10 N axial ≤25 N radial
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
BMSV 42	
Operating torque typ.	0.0093 Nm
BMMV 42	
Operating torque typ.	0.026 Nm

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Part number

Singleturn

BMSV 42S1N | **24B** | **12/00** | | |

- Connection
  - 5 Cable radial
  - N Connector M12, 5-pin, radial
- Solid shaft
  - C6 ø6 mm, IP 65
  - C0 ø10 mm, IP 65
- Resolution
  - 12/00 12 bit singleturn
- Voltage supply / signals
  - 24B 10...30 VDC / CANopen®

Multiturn

BMMV 42S1N | **24B** | **12/18** | | |

- Connection
  - 5 Cable radial
  - N Connector M12, 5-pin, radial
- Solid shaft
  - C6 ø6 mm, IP 65
  - C0 ø10 mm, IP 65
- Resolution
  - 12/18 12/18 bit single-/multiturn
- Voltage supply / signals
  - 24B 10...30 VDC / CANopen®

Accessories

Connectors and cables	
10153968	Female connector M12, 5-pin, straight, without cable
11046264	Female connector M12, 5-pin, straight, 2 m cable
11046266	Female connector M12, 5-pin, straight, 5 m cable
10153969	Cable connector M12, 5-pin, CAN, straight
10153972	T-junction M12 CAN (1 male/2 female)
10153974	Terminating resistor CAN
10158249	Cable with male/female M12, 5-pin, angled, A-coded, 2 m
10156842	Cable with male/female M12, 5-pin, angled, A-coded, 5 m
11144301	Cable with male/female M12, 5-pin, straight, A-coded, 0.3 m (stub line)
11144304	Cable with male/female M12, 5-pin, straight, A-coded, 2 m
11144306	Cable with male/female M12, 5-pin, straight, A-coded, 5 m
Mounting accessories	
10110616	Clamp set ø15 mm
11053277	Bellows coupling aluminium/stainless steel 10 mm
Programming accessories	
10147362	CD-ROM with GSD-/EDS-/XML files and user manuals

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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

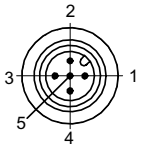
Terminal assignment

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 mm²

Connector M12 male
for connection reference **-N**

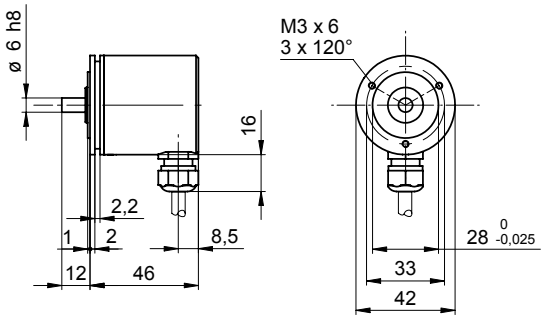
Connector	Signals	Description
Pin 1	n.c.	–
Pin 2	+Vs	Supply voltage
Pin 3	CAN_GND	CAN Ground / 0 V
Pin 4	CAN_H	Bus (dominant HIGH)
Pin 5	CAN_L	Bus (dominant LOW)



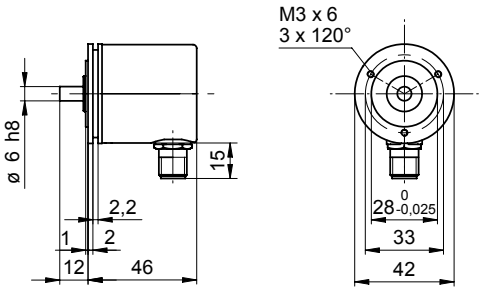
BMSV 42, BMMV 42 CANopen® - *MAGRES*

Dimensions

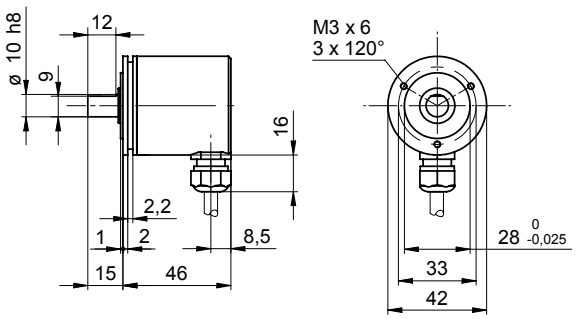
BMSV/BMMV 42 CANopen® shaft 6 mm, cable



BMSV/BMMV 42 CANopen® shaft 6 mm, connector M12



BMSV/BMMV 42 CANopen® shaft 10 mm, cable



BMSV/BMMV 42 CANopen® shaft 10 mm, connector