

Absolute encoders - bus interfaces

Solid shaft with clamping or synchro flange

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

BMSV 58, BMMV 58 CANopen® - MAGRES



BMMV 58K CANopen® with clamping flange

Features

- Encoder single- or multiturn / CANopen®
- Robust magnetic sensing
- Resolution: singleturn 12 bit, multiturn 18 bit
- Designed for harsh environmental conditions
- High resistance to shock and vibrations
- Operating temperature -40...+85 °C
- Solid shaft with clamping or synchro flange

Technical data - electrical ratings

Voltage supply	10...30 VDC
Consumption w/o load	≤80 mA (24 VDC)
Initializing time typ.	500 ms after power on
Interface	CANopen®
Profile conformity	CANopen® CiA DS 301, DSP 305, DS 406
Steps per turn	≤4096 / 12 bit
Sensing method	Magnetic
Angular accuracy	±0.5 °
Repeatability	0.3 °
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
Diagnostic functions	Multiturn sensing Position error
Approval	UL approval / E217823

BMSV 58K, BMSV 58S

Function	Singleturn
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BMMV 58K, BMMV 58S

Function	Multiturn
Number of turns	≤262144 / 18 bit

Technical data - mechanical design

Size (flange)	ø58 mm
Protection DIN EN 60529	IP 65 (without shaft seal), IP 67 (with shaft seal)
Operating speed	≤6000 rpm
Starting torque	≤2 Ncm (+20 °C, IP 65) ≤2.5 Ncm (+20 °C, IP 67)
Admitted shaft load	≤40 N axial ≤80 N radial
Materials	Housing: steel zinc-coated Flange: aluminium Solid shaft: stainless steel
Operating temperature	-40...+85 °C (see general informations)
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.	300 g
Connection	Connector M12, 5-pin Cable

BMSV 58K, BMMV 58K

Shaft type	ø10 x 20 mm, solid shaft with edge (clamping flange)
Flange	Clamping flange

BMSV 58S, BMMV 58S

Shaft type	ø6 x 10 mm, solid shaft with flat edge (synchro flange)
Flange	Synchro flange

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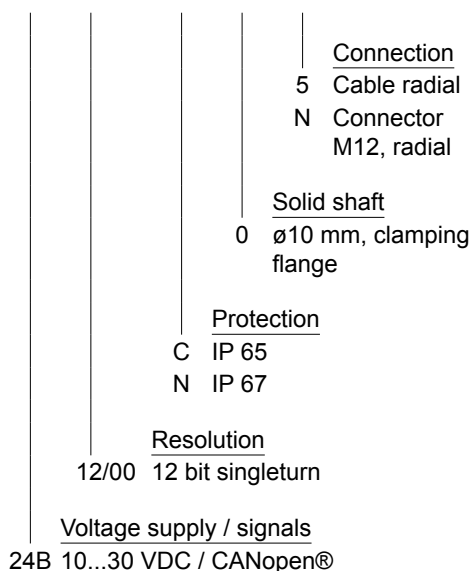
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Part number

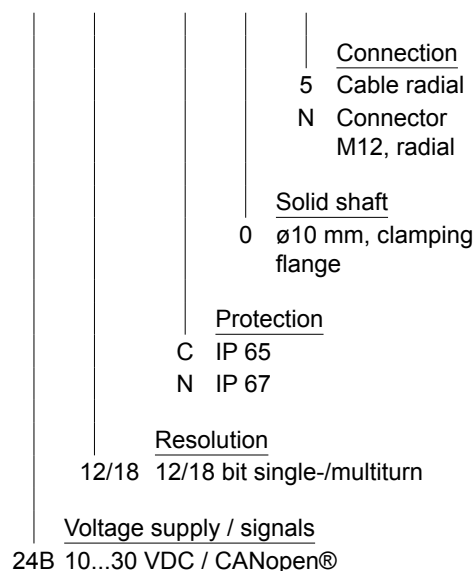
Singleturn clamping flange

BMSV 58K1N 24B 12/00 0



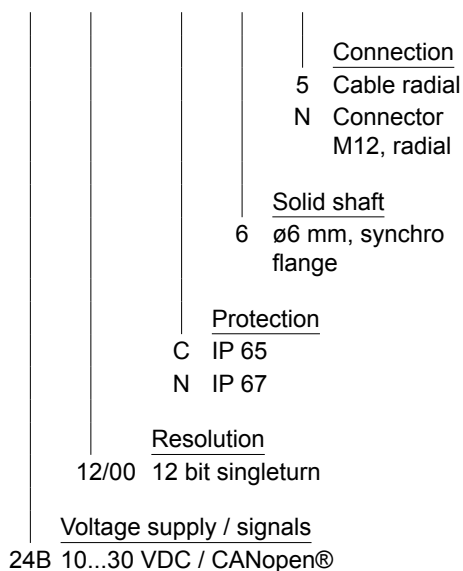
Multiturn clamping flange

BMMV 58K1N 24B 12/18 0



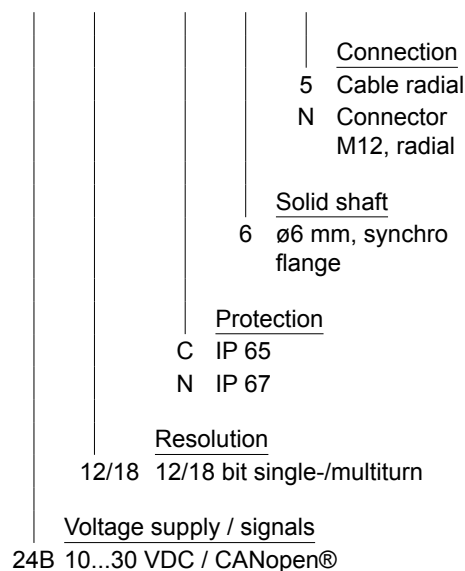
Singleturn synchro flange

BMSV 58S1N 24B 12/00 6



Multiturn synchro flange

BMMV 58S1N 24B 12/18 6



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CANopen® features

Bus protocol	CANopen®
Device profile	CANopen® - CiA DS 406
Operating modes	- Event-triggered / Time-triggered - Sync (cyclic)
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	The rotating direction in which there have to be ascending or descending position values can be defined. 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 error - Lithium battery voltage (multiturn)
Node Monitoring	Heartbeat
Default	50 kbit/s, Node ID 1

General informations

Self-heating interrelated to speed, protection, attachment method and ambient conditions as well electronics and supply voltage must be considered for precise thermal dimensioning. Self-heating is supposed to approximate 3 K (IP 65 protection) respectively 8 K (IP 67 protection) per 1000 rpm. Operating the encoder close to the maximum limits requires measuring the real prevailing temperature at the encoder flange.

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
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

10252773	Clamp set \varnothing 15 mm
11053277	Bellows coupling aluminium/stainless steel 10 mm

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Terminal significance

+Vs	Encoder voltage supply.
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.

Terminal assignment

Cable

for connection reference **-5**

Core colour	Signals	Description
white	0 V	Supply voltage
brown	+Vs	Supply voltage
green	CAN_H	Bus (dominant High)
yellow	CAN_L	Bus (dominant Low)
grey	CAN_GND	CAN Ground
pink	n.c.	–
blue	n.c.	–
red	n.c.	–

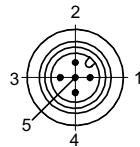
Screen: connected to housing

Cable data: 4 x 2 x 0.14 mm²

Connector M12

for connection reference **-N**

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



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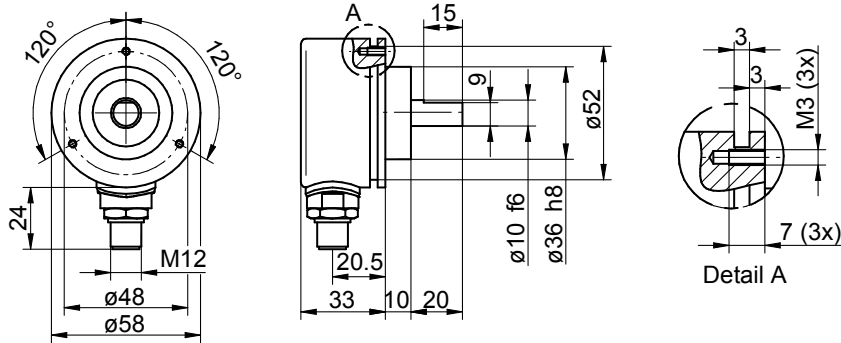
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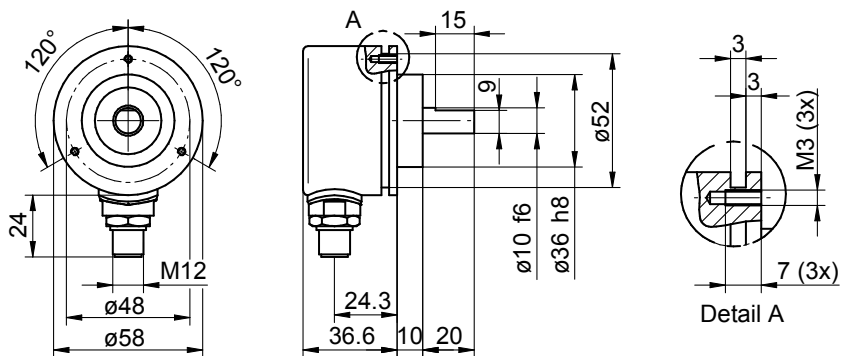
BMSV 58, BMMV 58 CANopen® - MAGRES

Dimensions

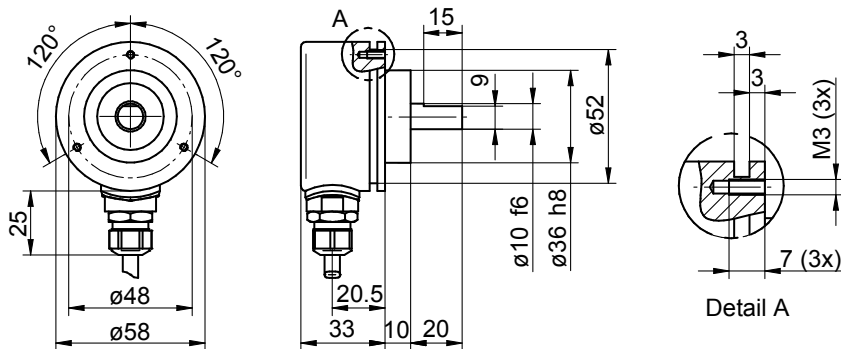
BMSV/BMMV 58 - clamping flange, connector M12, IP 65



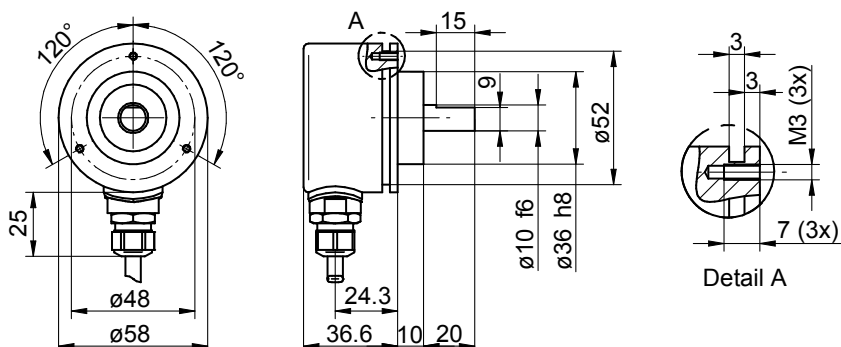
BMSV/BMMV 58 - clamping flange, connector M12, IP 67



BMSV/BMMV 58 - clamping flange, cable, IP 65



BMSV/BMMV 58 - clamping flange, cable, IP 67



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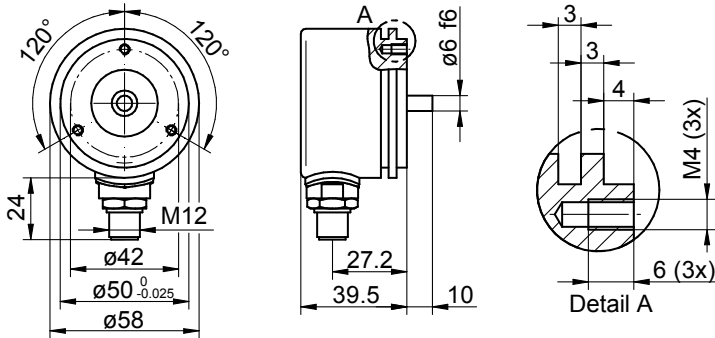
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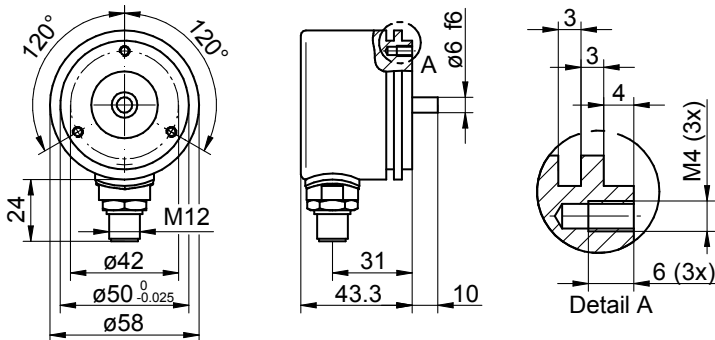
BMSV 58, BMMV 58 CANopen® - MAGRES

Dimensions

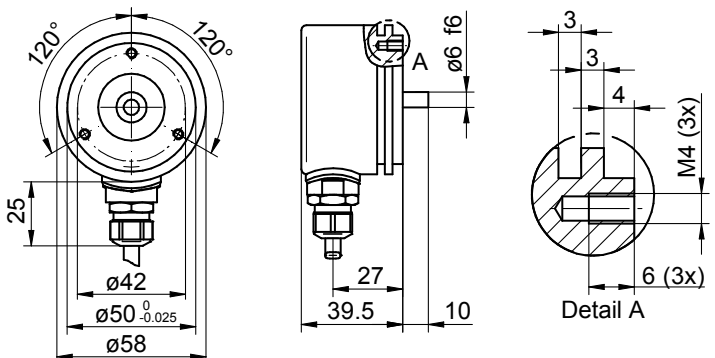
BMSV/BMMV 58 - synchro flange, connector M12, IP 65



BMSV/BMMV 58 - synchro flange, connector M12, IP 67



BMSV/BMMV 58 - synchro flange, cable, IP 65



BMSV/BMMV 58 - synchro flange, cable, IP 67

