

Absolute encoders - bus interfaces

Redundant encoders

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

BMSV 58, BMMV 58 CANopen® - MAGRES redundant



BMMV 58K CANopen® with clamping flange

Features

- Encoder single- or multiturn / CANopen®
- Single- and multiturn part redundant with integrated control system
- Magnetic sensing method
- Resolution: singleturn 12 bit, multiturn 18 bit
- Integrated fieldbus interface
- High resistance to shock and vibrations
- Resolution and zero point programmable
- Clamping or synchro flange
- Several connector variants

Technical data - electrical ratings

Voltage supply	10...30 VDC
Consumption typ.	100 mA (24 VDC, w/o load)
Initializing time typ.	500 ms after power on
Interface	CANopen®
Profile conformity	CiA 301 V4.1, CiA 305 V1.0, CiA 406 V3.2 (Multi-Sensor Encoder Interface)
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 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
Operating speed	≤12000 rpm (mechanical) ≤6000 rpm (electric)
Operating torque typ.	0.023 Nm
Materials	Housing: aluminium Flange: aluminium
Operating temperature	-20...+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
Weight approx.	300 g
Connection	Connector M12 Cable

BMSV 58K, BMMV 58K

Shaft type	ø10 mm solid shaft (clamping flange)
Flange	Clamping flange
Admitted shaft load	≤40 N axial ≤60 N radial

BMSV 58S, BMMV 58S

Shaft type	ø6 mm solid shaft (synchro flange)
Flange	Synchro flange
Admitted shaft load	≤10 N axial ≤20 N radial

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Part number

Singleturn clamping flange

BMSV 58K1N	24R	12/00	C0	
			5	Connection
			M	Cable radial
			N	2 x connector M12, radial
				Connector M12, 5-pin, radial
				Solid shaft
			C0	ø10 mm, IP 65
				Resolution
		12/00		12 bit singleturn
				Voltage supply / signals
				24R 10...30 VDC / CANopen® redundant

Multiturn clamping flange

BMMV 58K1N	24R	12/18	C0	
			5	Connection
			M	Cable radial
			N	2 x connector M12, radial
				Connector M12, 5-pin, radial
				Solid shaft
			C0	ø10 mm, IP 65
				Resolution
		12/18		12/18 bit single-/multiturn
				Voltage supply / signals
				24R 10...30 VDC / CANopen® redundant

Singleturn synchro flange

BMSV 58S1N	24R	12/00	C6	
			5	Connection
			M	Cable radial
			N	2 x connector M12, radial
				Connector M12, 5-pin, radial
				Solid shaft
			C6	ø6 mm, IP 65
				Resolution
		12/00		12 bit singleturn
				Voltage supply / signals
				24R 10...30 VDC / CANopen® redundant

Multiturn synchro flange

BMMV 58S1N	24R	12/18	C6	
			5	Connection
			M	Cable radial
			N	2 x connector M12, radial
				Connector M12, 5-pin, radial
				Solid shaft
			C6	ø6 mm, IP 65
				Resolution
		12/18		12/18 bit single-/multiturn
				Voltage supply / signals
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CANopen® features		Accessories	
Bus protocol	CANopen®	Connectors and cables	
Device profile	CANopen® - CiA DSP 406, V 3.0 (Multi-Sensor Encoder Interface Device Class 2, CAN 2.0B)	10153968	Female connector M12, 5-pin, straight, without cable
Operating modes	- Event-triggered / Time-triggered - Remotely-requested - Sync (cyclic) / Sync (acyclic)	11046266	Female connector M12, 5-pin, straight, 5 m cable
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.	10153969	Cable connector M12, 5-pin, CAN, straight
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.	10156842	Cable with male/female M12, 5-pin, angled, A-coded, 5 m
Scaling	Parameter defining the steps per turn as well as the total resolution.	11144306	Cable with male/female M12, 5-pin, straight, A-coded, 5 m
Diagnosis	The encoder supports the following error warnings: - Position error redundancy system - Position and parameter error - Lithium battery voltage (multiturn)	Mounting accessories for BMSV 58K, BMMV 58K	
Node Monitoring	Heartbeat or Nodeguarding	10252773	Clamp set ø15 mm
Default	50 kbit/s, Node ID 1	11053277	Bellows coupling aluminium/stainless steel 10 mm
		Mounting accessories for BMSV 58S, BMMV 58S	
		10252773	Clamp set ø15 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.

Terminal assignment

Cable

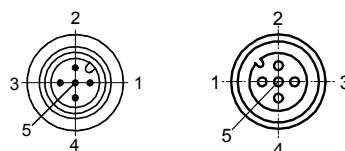
for connection reference -5

Core colour	Signals	Description
blue	d.u.	do not use
yellow	CAN_L	Bus (dominant LOW)
grey	CAN_GND	CAN Ground
red	d.u.	do not use
pink	n.c.	–
white	0 V	Supply voltage
green	CAN_H	Bus (dominant HIGH)
–	n.c.	–
brown	+Vs	Supply voltage
Screen	connected to housing	
Cable data	8 x 0.14 mm ²	

Connector (2 x M12) male/female

for connection reference -M

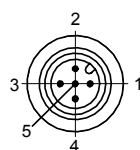
Conn.	Signals	Description
Pin 1	CAN_GND	CAN Ground
Pin 2	+Vs	Supply voltage
Pin 3	0 V	Supply voltage
Pin 4	CAN_H	Bus (dominant HIGH)
Pin 5	CAN_L	Bus (dominant LOW)



Connector M12 male

for connection reference -N

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



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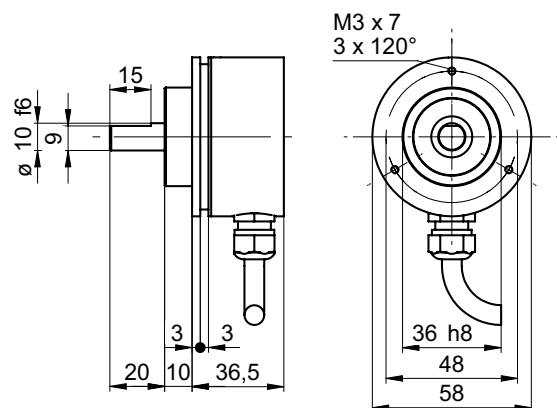
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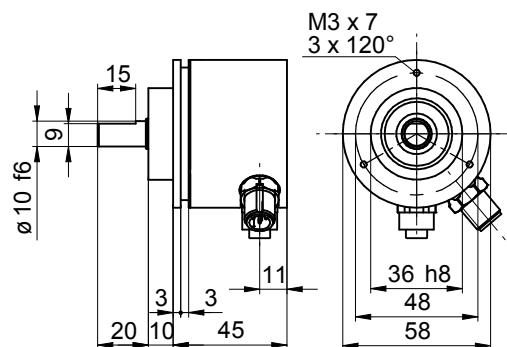
BMSV 58, BMMV 58 CANopen® - MAGRES redundant

Dimensions

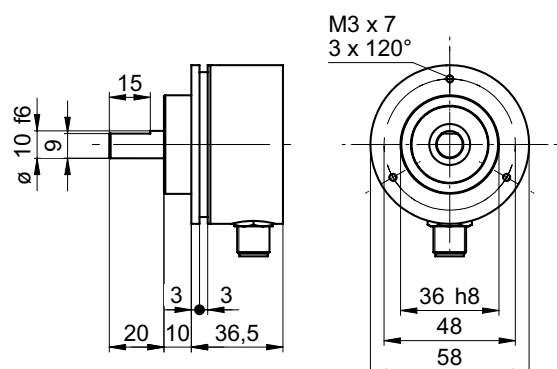
BMSV/BMMV 58 CANopen® clamping flange, cable



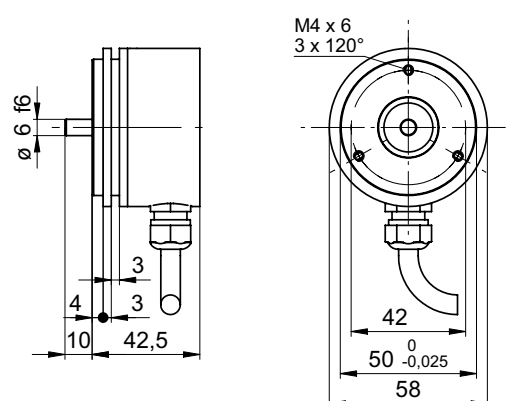
BMSV/BMMV 58 CANopen® clamping flange, 2 x M12



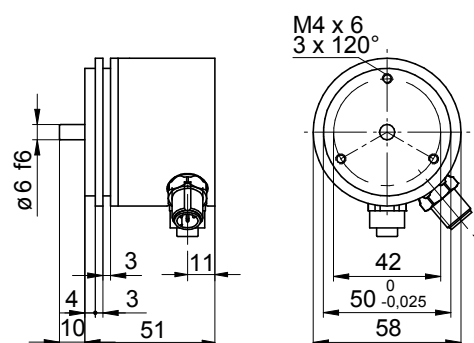
BMSV/BMMV 58 CANopen® clamping flange, 1 x M12



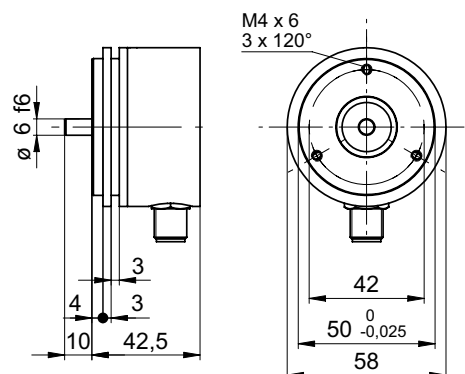
BMSV/BMMV 58 CANopen® synchro flange, cable radial



BMSV/BMMV 58 CANopen® synchro flange, 2 x M12



BMSV/BMMV 58 CANopen® synchro flange, 1 x M12



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