

Absolute encoders - bus interfaces

Solid shaft $\varnothing 10$ mm with clamping flange

Magnetic multiturn encoders 13 bit ST / 16 bit MT, Profibus-DP

BMMV 58 Profibus-DP - MAGRES hermetic



BMMV 58K Profibus-DP with clamping flange

Features

- Encoder multiturn / Profibus-DP
- Magnetic sensing, hermetically sealed
- Resolution: singleturn 13 bit, multiturn 16 bit
- Integrated fieldbus interface
- High resistance to shock and vibrations
- Resolution and zero point programmable
- Clamping flange
- Protection IP 69K
- Material: stainless steel 1.4305

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	Profibus-DPV0
Function	Multiturn
Device adress	Rotary switch in housing
Steps per turn	≤ 8192 / 13 bit
Number of turns	≤ 65536 / 16 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 Preset Scaling
Diagnostic functions	Position or parameter error Multiturn sensing
Status indicator	DUO-LED integrated in housing
Approval	UL approval / E217823

Technical data - mechanical design

Size (flange)	$\varnothing 58$ mm
Shaft type	$\varnothing 10$ mm solid shaft (clamping flange)
Flange	Clamping flange
Protection DIN EN 60529	IP 68, IP 69K
Operating speed	≤ 6000 rpm
Operating torque typ.	0.031 Nm
Admitted shaft load	≤ 120 N axial (combined) ≤ 280 N radial (combined) ≤ 270 N axial (concentrated load)
Materials	Stainless steel 1.4305 (other materials on request)
Operating temperature	$-40...+85^\circ\text{C}$
Relative humidity	95 %
Resistance	DIN EN 60068-2-6 Vibration 30 g, 10-2000 Hz DIN EN 60068-2-27 Shock 500 g, 6 ms
Weight approx.	900 g
Connection	Connector M12, 5-pin

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Part number

Clamping flange

BMMV 58K5N	24P	13/16	H0	P	
				P	Connection 3 x connector M12, radial
			H0		Solid shaft ø10 mm, IP 68 and IP 69K
		13/16			Resolution 13/16 13/16 bit single-/multiturn
	24P				Voltage supply / signals 10...30 VDC / Profibus-DPV0

Accessories

Connectors and cables

10157909	Cable with male/female M12, Profibus, straight, B-coded, 2 m
10157910	Cable with male/female M12, Profibus, straight, B-coded, 5 m
10159389	Cable with male/female M12, Profibus, straight, B-coded, 0.3 m (stub line)
10157911	Cable with male/female M12, Profibus, angled, B-coded, 2 m
10157912	Cable with male/female M12, Profibus, angled, B-coded, 5 m
10132540	Female connector M12, angled, A-coded, 2 m for MAGRES hermetic Profibus
10127803	Female connector M12, straight, A-coded, 2 m for MAGRES hermetic Profibus

Mounting accessories

10252773	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.
+VsDP	Supply voltage VP Profibus +5 VDC, to supply an external terminating resistor.
0 VDP	Data Ground Profibus (reference potential to +VsDP), to supply an external terminating resistor.
A line green	Profibus-DP signal cable green (RxD / TxD – P)
B line red	Profibus-DP signal cable red (RxD / TxD – N)

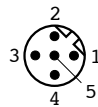
Profibus-DP features

Bus protocol	Profibus-DP
Profibus Features	Device Class 1 and 2
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 control (Multiturn)
Default	Node ID 3

Terminal assignment

Connector M12 Bus-IN male

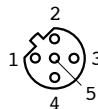
Connector	Signals	Description
Pin 1	n.c.	–
Pin 2	A line green	Cable green / Profibus-DP
Pin 3	n.c.	–
Pin 4	B line red	Cable red / Profibus-DP
Pin 5	n.c.	–
B-coded		



Connector M12 Bus-OUT female

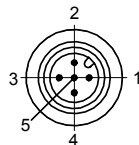
Connector	Signals	Description
Pin 1	+VsDP	VP Profibus +5 VDC ¹⁾
Pin 2	A line green	Cable green / Profibus-DP
Pin 3	0 VDP	DGND Profibus ¹⁾
Pin 4	B line red	Cable red / Profibus-DP
Pin 5	n.c.	–
B-coded		

¹⁾ for optional external terminating resistor



Connector M12 supply voltage

Connector	Signals	Description
Pin 1	+Vs	Supply voltage
Pin 2	n.c.	–
Pin 3	0 V	Supply voltage
Pin 4	0 V	Supply voltage
Pin 5	n.c.	–
A-coded		



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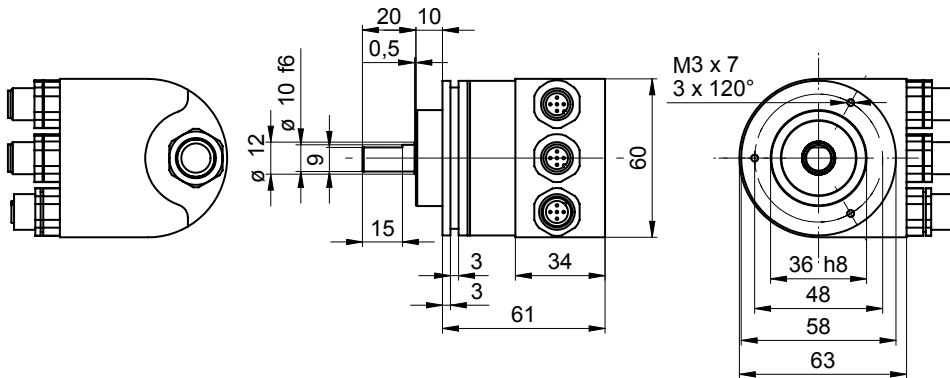
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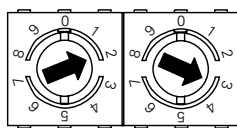
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Dimensions

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User address



Address can be set with rotary switches.
Example: User address 23

Terminating resistor



ON = Last User
OFF = User X