Absolute encoders - bus interfaces

Redundant encoders

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

BMSH 58, BMMH 58 CANopen - *MAGRES redundant*

BMMH 58 CANopen with end shaft

Features

- **Encoder single- or multiturn / CANopen**
- **Single- and multiturn part redundant with integrated control system**
- **Magnetic sensing**
- **Resolution: singleturn 12 bit, multiturn 18 bit**
- **Integrated fieldbus interface**
- **High resistance to shock and vibrations**
- **Resolution and zero point programmable**

Technical data - electrical ratings

Voltage supply	10...30 VDC
Consumption w/o load (typ.)	100 mA (24 VDC)
Initializing time (typ.)	170 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
BMSH 58	
Function	Singleturn
BMMH 58	
Function	Multiturn
Number of turns	≤262144 / 18 bit

Technical data - mechanical design

Dimensions (flange)	ø58 mm
Shaft	ø12 mm end shaft
Protection DIN EN 60529	IP 65
Operating speed	≤12000 rpm (mechanical) ≤6000 rpm (electric)
Operating torque typ.	0.0093 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, 5-pin Cable

BMSH 58, BMMH 58 CANopen - *MAGRES redundant*

Part number

Singleturn

BMSH 58S1N | | **12/00** | | |

Connection
- 5 Cable radial
- M 2 x connector M12, radial
- N Connector M12, 5-pin, radial

Shaft
- B2 End shaft ø12 mm, IP 42, with clamping ring
- P2 End shaft ø12 mm, IP 65, with clamping ring

Resolution
- 12/00 12 bit singleturn

Voltage supply / signals
- 24B 10...30 VDC / CANopen
- 24R 10...30 VDC / CANopen redundant

Multiturn

BMMH 58S1N | | **12/18** | | |

Connection
- 5 Cable radial
- M 2 x connector M12, radial
- N Connector M12, 5-pin, radial

Shaft
- B2 End shaft ø12 mm, IP 42, with clamping ring
- P2 End shaft ø12 mm, IP 65, with clamping ring

Resolution
- 12/18 12/18 bit single-/multiturn

Voltage supply / signals
- 24B 10...30 VDC / CANopen
- 24R 10...30 VDC / CANopen redundant

Accessories

Connectors and cables	
10153968	Female connector M12, 5-pin, A-coded, straight
10153969	Cable connector M12, CAN, 5-pin, straight
Mounting accessories	
10136635	Set of spring coupling for encoders ø58 mm
10110616	Clamp set ø15 mm
10107540	Torque pin
10109520	Torque spring washer
Programming accessories	
10147362	CD-ROM with GSD-/EDS-/XML files and user manuals

Absolute encoders - bus interfaces

Redundant encoders

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

BMSH 58, BMMH 58 CANopen - *MAGRES redundant*

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 (Multi-Sensor Encoder Interface 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 error redundancy system - Position and parameter error - Lithium battery voltage (multiturn)
Node Monitoring	Heartbeat or Nodeguarding
Default	50 kbit/s, Node ID 1

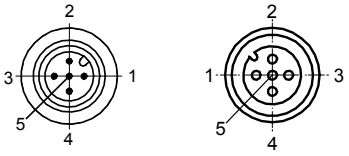
Terminal assignment

Cable
for connection reference **-5**

Core colour	Signals	Description
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 mm²	

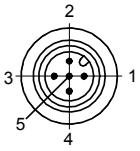
Connector (2 x M12) male/female
for connection reference **-M**

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**

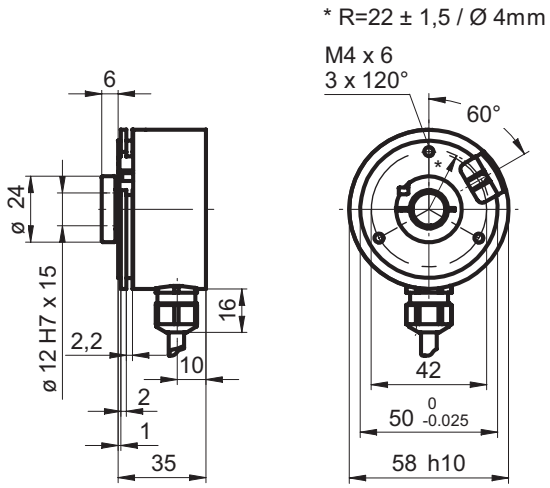
Conn.	Signals	Description
Pin 1	CAN_GND	CAN Ground
Pin 2	+Vs	Supply voltage
Pin 3	0 V	Supply voltage
Pin 4	CAN_H	Bus (dominant HIGH)
Pin 5	CAN_L	Bus (dominant LOW)



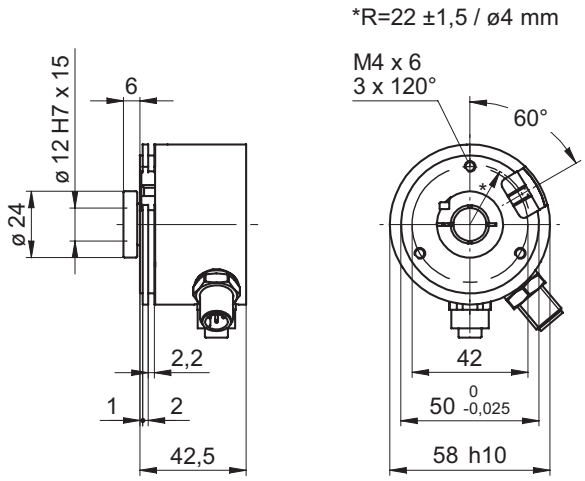
BMSH 58, BMMH 58 CANopen - *MAGRES redundant*

Dimensions

BMSH/BMMH 58 CANopen cable radial



BMSH/BMMH 58 CANopen connector 2 x M12 radial



BMSH/BMMH 58 CANopen connector 1 x M12 radial