

Positioning drives

DC motor, brushless

Absolute multiturn position detection, CANopen®

MSIA 68 - bevel gear transmission W3 CANopen



MSIA 68 with bevel gear transmission W3 connection axial

Technical data - electrical ratings

Voltage supply	24 VDC $\pm 10\%$
Current consumption	≤ 14 A
Nominal current	5.5 A
Operating current typ.	≤ 100 mA
Initializing time	≤ 1000 ms after power on
Positioning resolution motor	0.02 °
Positioning accuracy motor	± 1 °
Repeatability motor	0.3 °
Number of revolutions	262144 / 18 bit
Commutation	Sine
Undervoltage shutdown	≤ 11.5 V
Terminating resistor	External (see accessories)
Controller	Integrated position and speed regulator (4Q)
Sensing method	Magnetic
Number of pole pairs	2 = 4 poles
Reverse polarity protection	Bus electronics
Overheat protection	112 °C (final power output circuit)
Interference immunity	DIN EN 61000-6-2
Emitted interference	DIN EN 61000-6-4

Features

- Positioning drive with worm gear transmission bevel geared shaft
- CANopen®
- Brushless DC motor
- Absolute multiturn position detection
- Nominal power output 80 W
- 4 inputs programmable
- Separate communication and power supply
- Manual positioning operations

Optional

- Holding brake

Technical data - mechanical design

Dimensions	$\varnothing 68$ mm
Shaft type	$\varnothing 12$ mm (through hollow shaft)
Operating speed	≤ 4200 rpm
Nominal speed	3900 rpm
Nominal power output	92 W
Nominal torque	0.225 Nm
Starting torque	≤ 0.68 Nm
Service life	20000 h (without gear)
Protection DIN EN 60529	IP 54
Ambient temperature	-15...+40 °C
Isolation class	B (+130 °C, DIN EN 60034-1)
Rotor moment of inertia	588 gcm ²
Connection	Connector
Resistance	DIN EN 60068-2-6 Vibration DIN EN 60068-2-27 shock
Self-locking in de-energized state	< 0.02 Nm
Shaft surface	Through-groove for key only
Manual shaft alignment	Yes
Material	Housing: Aluminium and zinc diecast
S1 continuous operation	DIN EN 60034-1
S3 intermittent operation	Power-on time 25 %, run time 1 min
Instruction	Nominal data at +40 °C ambient temperature for gearless motor. Service life at operating factor = 1.

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Part number

MSIA 68C2P 12-N64 C

Gear
reducer
000 Without
gear trans-
mission
007 7 : 1
020 20 : 1
038 38 : 1
100 100 : 1

Gearing variant

K0 Without gear
transmission
W3 Bevel gear
transmission
with hollow shaft
ø12 mm

Protection

C IP 54

Connecting direction

- A Axial
- R Connection on 3:00 o'clock position, radial*
- S Connection on 6:00 o'clock position, radial*
- T Connection on 12:00 o'clock position, radial*
- U Connection on 9:00 o'clock position, radial*

* When looking at gearing (gearing position 6:00 o'clock with horizontal shaft orientation)

Accessories

Connectors and cables

10153493	Female connector D-SUB, 9-pin, straight, voltage supply and I/Os without cable
10154968	Female connector D-SUB, 9-pin, CAN, angled, with terminating resistor
10163483	Female connector D-SUB Kit, IP 65, 9-pin, straight
11002151	Cable, 10-wire, voltage supply and I/Os
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
10153968	Female connector M12, 5-pin, straight, without cable
10145021	Female connector M12, 5-pin, CAN, angled
10153969	Cable connector M12, 5-pin, CAN, straight
10156584	Cable connector M12, 5-pin, CAN, angled
10153974	Terminating resistor CAN
10154968	Female connector D-SUB, 9-pin, CAN, angled, with terminating resistor

Programming accessories

11128719	USB-to-CAN V2 adaptor, D-SUB, 9-pin
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Motor-gearing-combination

Gear ratio	Torque nominal (Nm)		Rotational speed (rpm)		Admitted shaft load (N)		Weight (kg)	Positioning resolution (°)	Recordable revolutions	Max. transmission play (°)	Mmax gear (Nm)	Gear efficiency approx.
	S1	S3	S1	S3	axial	radial						
-	0.23	0.53	3900	3500	40	400	1.9	0.022	262144	-	-	-
7	1.1	2.7	557	500	40	60	2.8	3.1 x 10 ⁻³	37449	0.29	9.7	0.75
20	2.5	5.9	195	175	40	60	2.8	1.1 x 10 ⁻³	13107	0.27	10.3	0.57
38	4.0	9.3	103	92	40	60	2.8	5.8 x 10 ⁻⁴	6899	0.25	10.0	0.47
100	6.3	14.7	39	35	40	60	2.8	2.2 x 10 ⁻⁴	2621	0.24	7.4	0.28

Further motor - gear combinations upon request.

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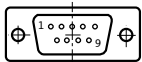
Absolute multiturn position detection, CANopen®

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Terminal assignment

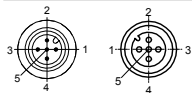
Connector – D-Sub, 9-pin

Connector	Signal	Description
Pin 1	+VsE	+24 VDC voltage supply electronic
Pin 2	Input 1	Input programmable
Pin 3	Input 2	Input programmable
Pin 4	Input 3	Input programmable
Pin 5	Input 4	Input programmable
Pin 6	0 VME	0 VDC voltage s. motor / electronic
Pin 7	0 VME	0 VDC voltage s. motor / electronic
Pin 8	+VsM	+24 VDC voltage supply motor
Pin 9	+VsM	+24 VDC voltage supply motor
	Shield	Housing



Connector male / female – M12, 5-pin, A-coded

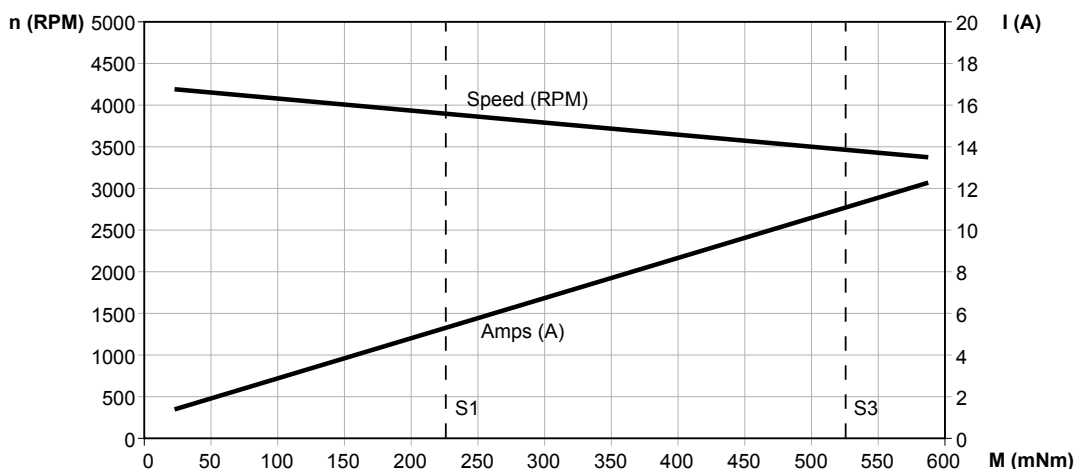
Connector	Signal	Description
Pin 1	n.c.	–
Pin 2	n.c.	–
Pin 3	CAN_GND	CAN Ground
Pin 4	CAN_H	Bus (dominant HIGH)
Pin 5	CAN_L	Bus (dominant LOW)
	Shield	Housing



Technical data - communication

Interface	CANopen®
Output stages	CAN bus standard ISO / DIS 11898
Profile conformity	CANopen® CiA DS 301 V4.02, DSP 305 V1.0, DSP 402 V2.0
Cyclic data transfer	PDO
Node Guarding	Node Guarding, Life Guarding, Heartbeat
Transmission rate	10...1000 kbit/s
Galvanic isolation bus	Yes
Inputs	4 digitally programmable
Switching frequency	<500 Hz
Setting switch	Manual setting of bus address and baud rate
Potential equalization	Separate screw connection
Status indicator	DUO-LED integrated in housing
Operating modes	Position-controlled operation, Speed-controlled operation, Referencing, Journey datasets
Diagnostic functions	Temperature control Position error Self-diagnosis
Programming software	Yes
Factory setting	50 kbit/s, Node ID 1

Characteristic load curve motor without gears



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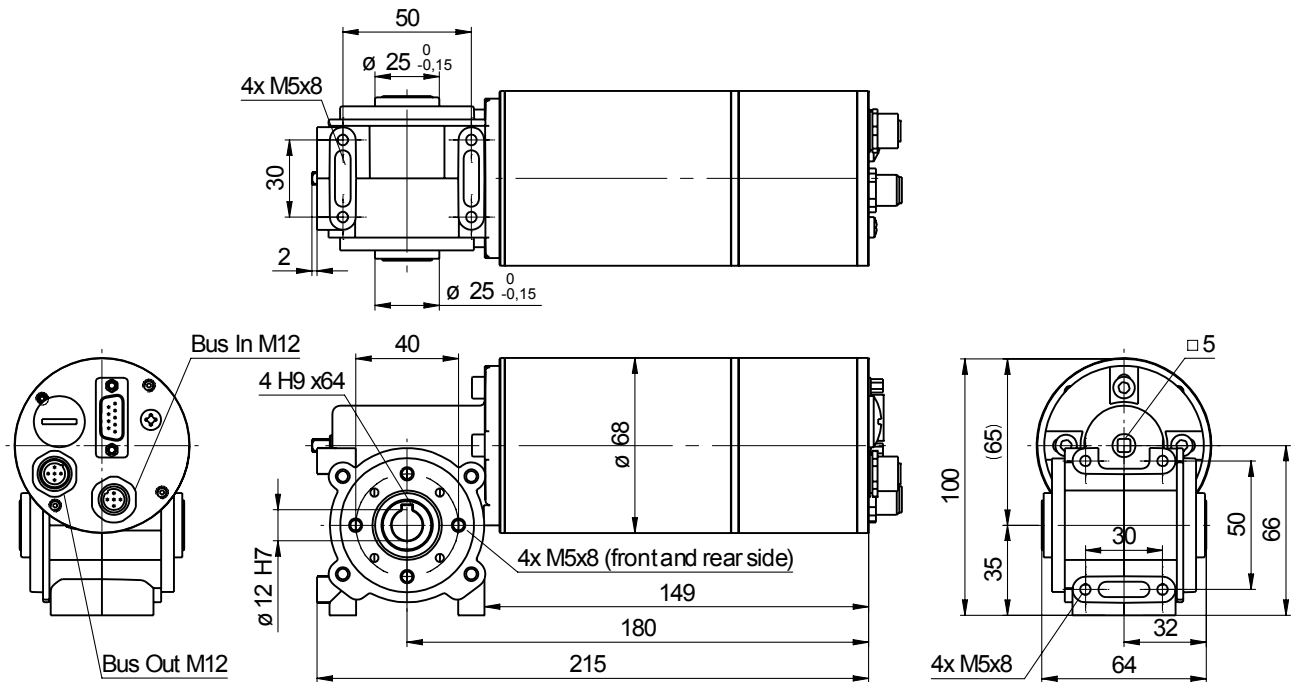
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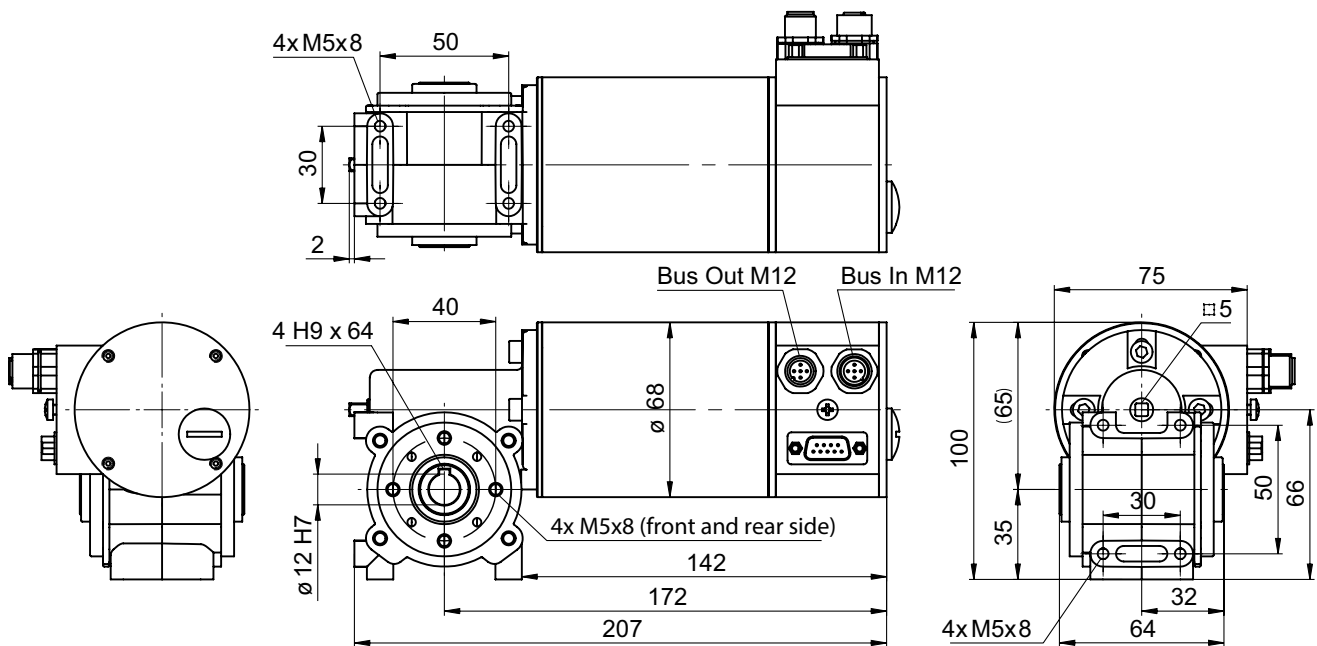
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Dimensions

MSIA 68 bevel gear transmission, connection axial



MSIA 68 bevel gear transmission, connection radial



Positioning drives

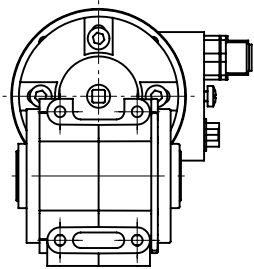
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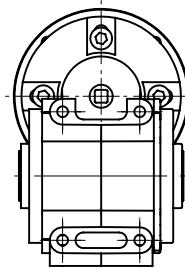
MSIA 68 - bevel gear transmission W3 CANopen

Dimensions

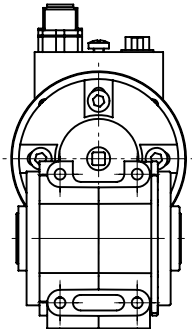
R - Connection on 3:00 o'clock position, radial



S - Connection on 6:00 o'clock position, radial



T - Connection on 12:00 o'clock position, radial



U - Connection on 9:00 o'clock position, radial

