

# 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	$\leq 14$ A
Nominal current	5.5 A
Starting current	Charging current capacitor 1500 $\mu$ F
Operating current typ.	$\leq 100$ mA
Initializing time	$\leq 1000$ ms after power on
Positioning resolution motor	0.02 °
Positioning accuracy motor	$\pm 1$ °
Repeatability motor	0.3 °
Number of turns	262144 / 18 bit
Commutation	Sine
Undervoltage shutdown	$\leq 11.5$ 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	$\leq 4200$ rpm
Nominal speed	3900 rpm
Nominal power output	92 W
Nominal torque	0.225 Nm
Starting torque	$\leq 0.68$ 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 <sup>2</sup>
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\*

### Accessories

#### Connectors and cables

10164870	Female connector D-SUB, 9-pin, straight, voltage supply / I/Os, cable 5 m
10153493	Female connector D-SUB, 9-pin, straight, voltage supply and I/Os without cable
10145023	Female connector D-SUB, 9-pin, angled
10163483	Female connector D-SUB Kit, IP 65, 9-pin, straight
11002151	Cable, 10-wire, voltage supply and I/Os
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
10158246	Female connector M12, CAN, angled, A-coded, 2 m cable
10153968	Female connector M12, 5-pin, straight, less 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
10153972	T-junction M12 CAN (1 male/2 female)
10153974	Terminating resistor CAN
10154968	Female connector D-SUB, 9-pin, CAN, angled, with terminating resistor

#### Programming accessories

10147362	CD-ROM with GSD-/EDS-/XML files and user manuals
11128719	USB-to-CAN V2 adaptor, D-SUB, 9-pin

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

### 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 <sup>-3</sup>	37449	0.29	9.7	0.75
20	2.5	5.9	195	175	40	60	2.8	1.1 x 10 <sup>-3</sup>	13107	0.27	10.3	0.57
38	4.0	9.3	103	92	40	60	2.8	5.8 x 10 <sup>-4</sup>	6899	0.25	10.0	0.47
100	6.3	14.7	39	35	40	60	2.8	2.2 x 10 <sup>-4</sup>	2621	0.24	7.4	0.28

Further motor - gear combinations upon request.

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## DC motor, brushless

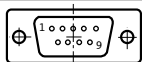
### Absolute multiturn position detection, CANopen®

#### MSIA 68 - bevel gear transmission W3 CANopen

##### Terminal assignment

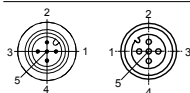
###### Connector – D-Sub, 9-pin

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

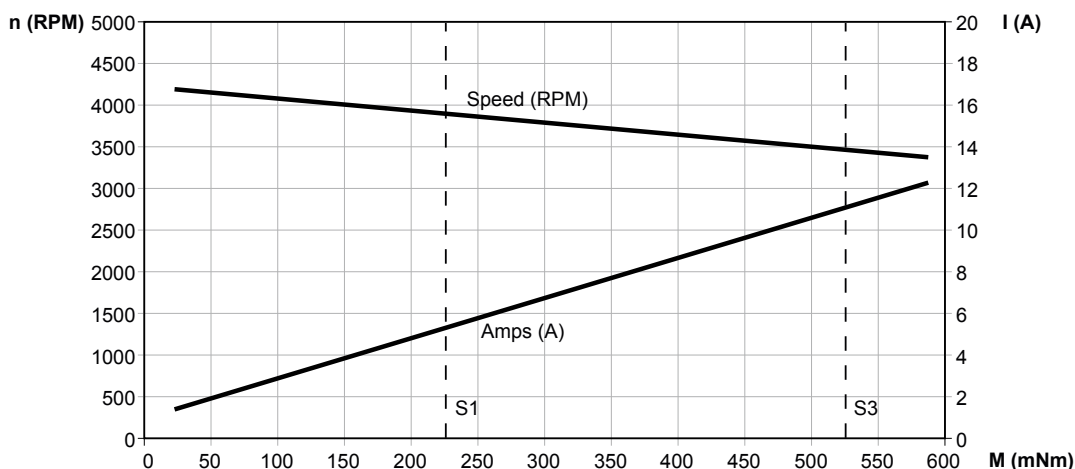
Connector	Signal	Description
Pin 1	n.c.	–
Pin 2	n.c.	–
Pin 3	CAN_GND	CAN Ground
Pin 4	CAN_H	Bus (dominant HIGH)
Pin 5	CAN_L	Bus (dominant LOW)
	Shield	Housing



##### 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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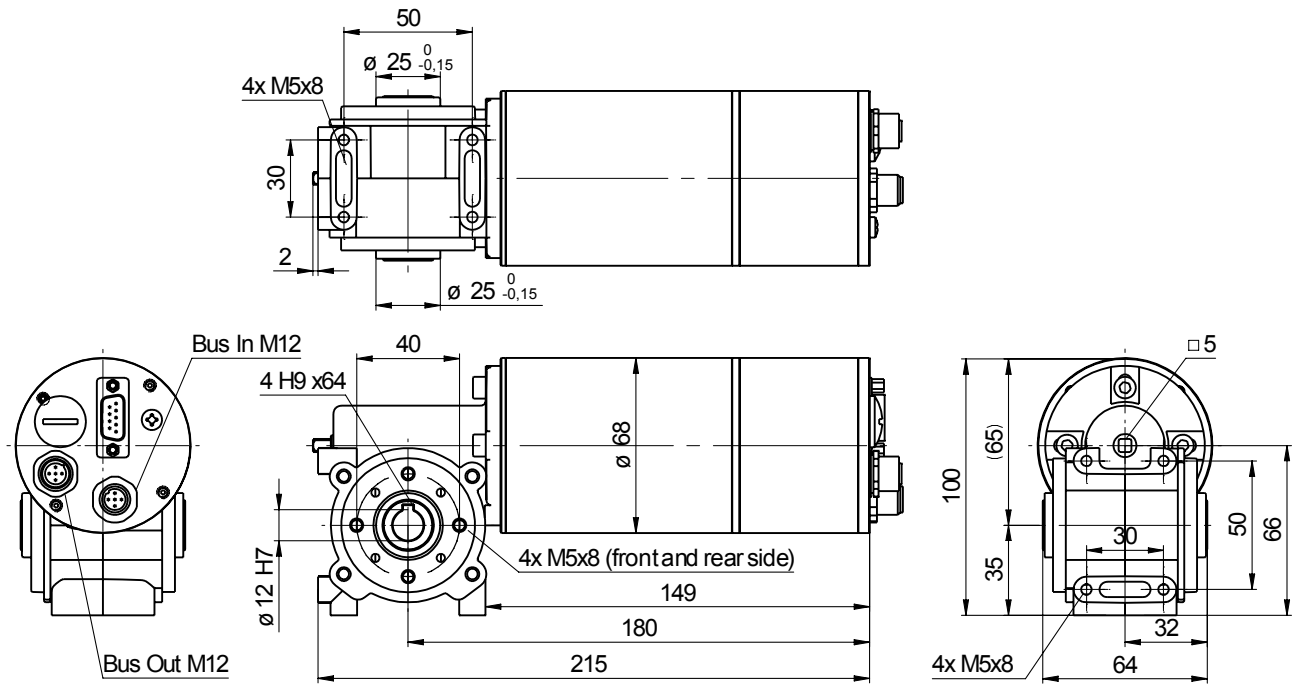
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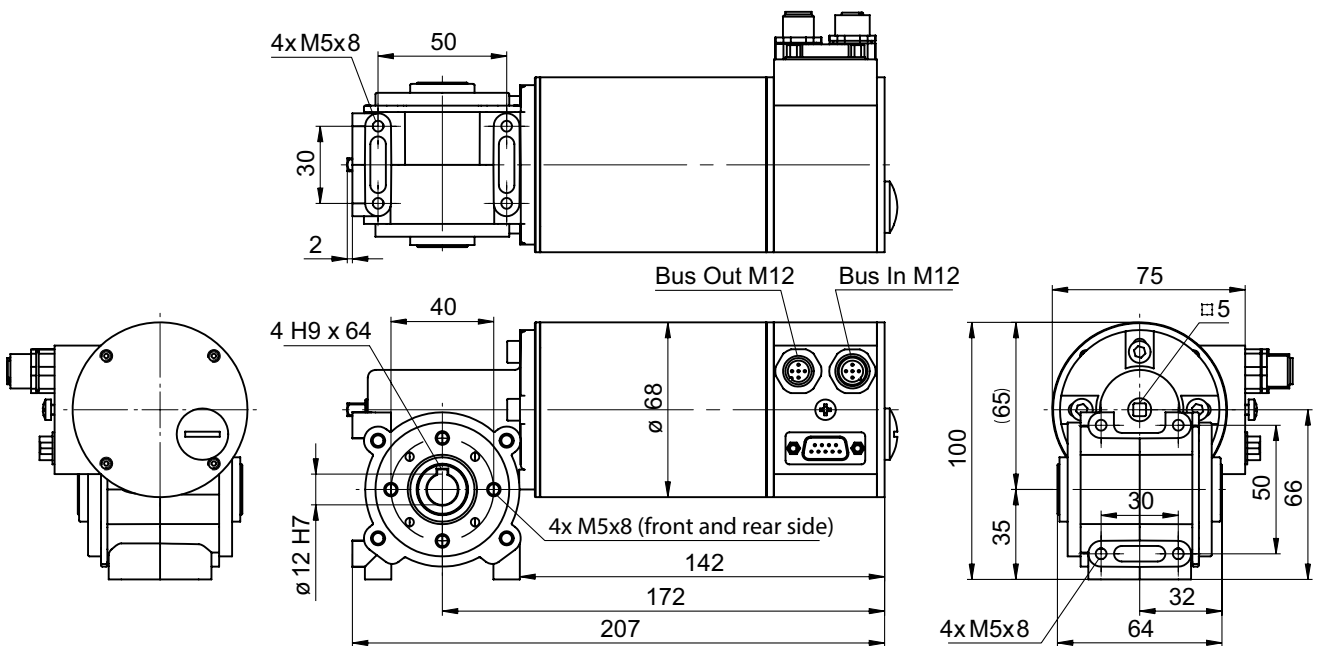
## MSIA 68 - bevel gear transmission W3 CANopen

### Dimensions

#### MSIA 68 bevel gear transmission, connection axial



#### MSIA 68 bevel gear transmission, connection radial



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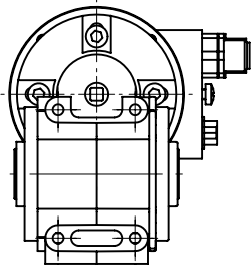
Absolute multiturn position detection, CANopen®

## MSIA 68 - bevel gear transmission W3 CANopen

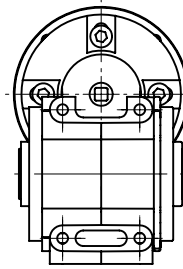
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### Dimensions

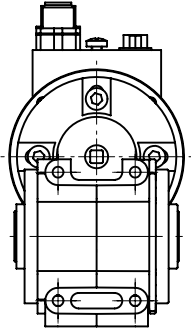
R - Connection on 3:00 o'clock position, radial



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

