

Positioning drives

DC motor, brushless

Absolute multiturn position detection, CANopen®

MSIA 68 - bevel gear transmission V6 CANopen



MSIA 68 with bevel gear transmission V6 connection axial

Technical data - electrical ratings

| | |
|------------------------------|--|
| Voltage supply | 24 VDC $\pm 10\%$ |
| Current consumption | ≤ 14 A |
| Nominal current | 5.5 A |
| Starting current | Charging current capacitor 1500 μ F |
| 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 turns | 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
012 12 : 1
038 38 : 1
077 77 : 1

Gearing variant
K0 Without gear
transmission
V6 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 | 3500 | 3500 | 40 | 400 | 1.9 | 0.022 | 262144 | - | - | - |
| 12 | 2.0 | 4.6 | 292 | 292 | 100 | 200 | 2.8 | 1.8 x 10 ⁻³ | 21845 | 0.55 | 4.4 | 0.74 |
| 38.5 | 6.4 | 14.9 | 91 | 91 | 100 | 200 | 2.8 | 0.6 x 10 ⁻³ | 6809 | 0.55 | 4.4 | 0.74 |
| 77.12 | 12.1 | 28.3 | 45 | 45 | 100 | 200 | 2.8 | 0.3 x 10 ⁻³ | 3404 | 0.4 | 9.5 | 0.70 |

Further motor - gear combinations upon request.

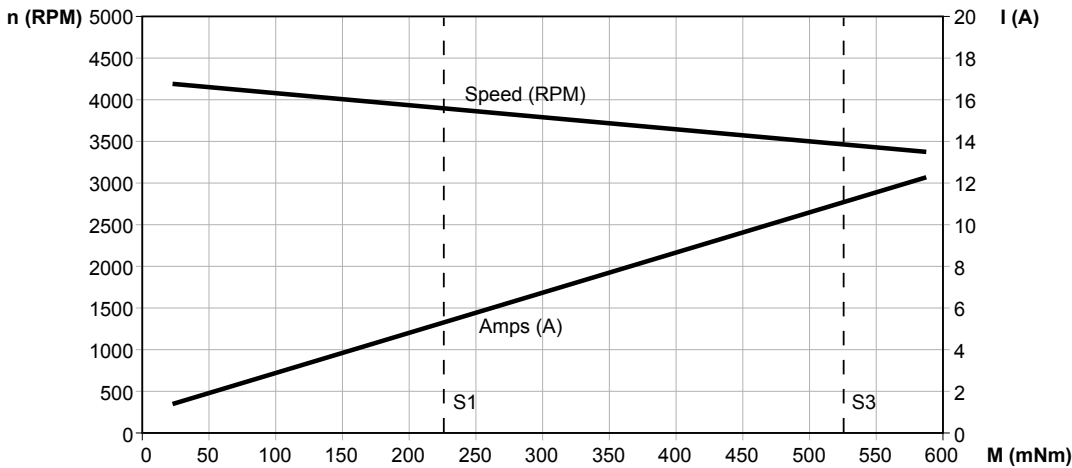
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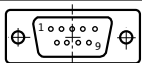
Characteristic load curve motor without gears



Terminal assignment

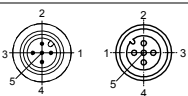
Connector – D-Sub, 9-pin

| 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 |
| Inputs | |
| 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 |

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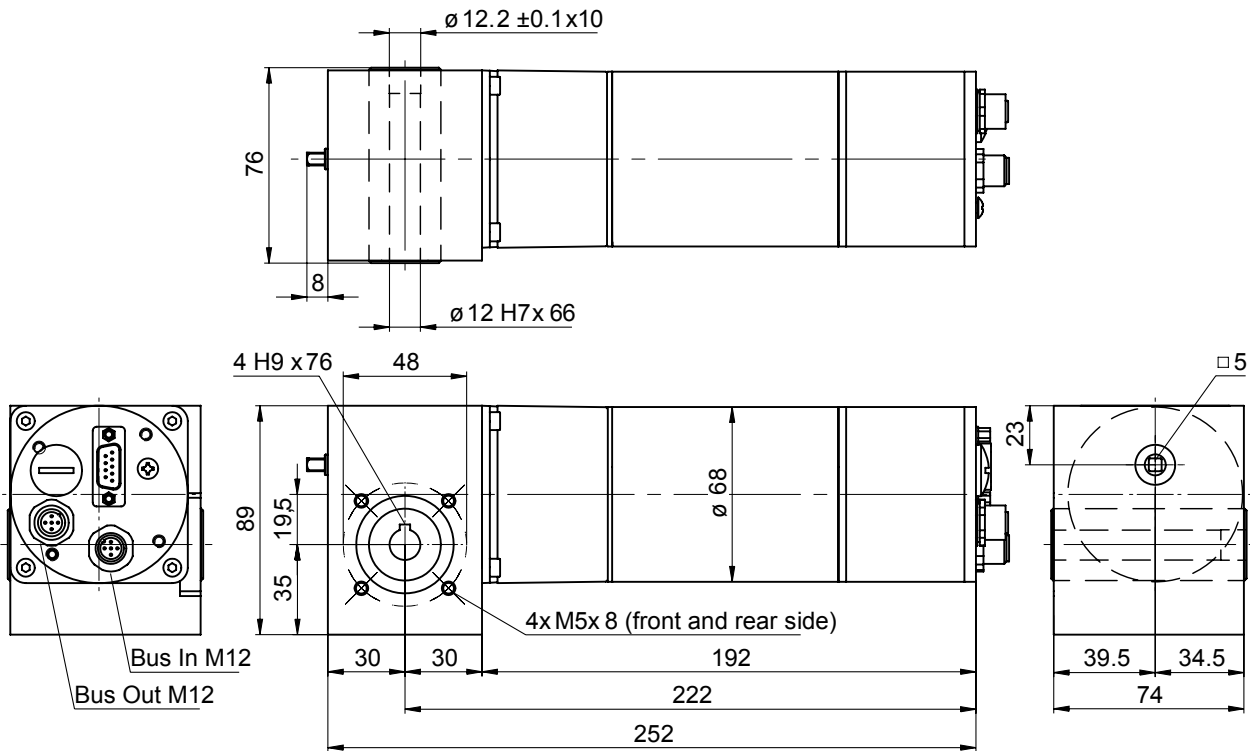
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Dimensions

MSIA 68 bevel gear transmission with hollow shaft $\varnothing 12$ mm, connection axial



MSIA 68 bevel gear transmission with hollow shaft $\varnothing 12$ mm, connection radial

