Positioning drives

DC motor, brushless

Absolute multiturn position detection, CANopen

MSIA 42 - CANopen

MSIA 42 without gearing

Features

- **Positioning drive with/without planetary gears**
- **CANopen**
- **Brushless DC motor**
- **Absolute multiturn position detection**
- **Nominal power output 36 W**
- **4 inputs programmable**
- **Journey datasets programmable**
- **Separate communication and power supply**

Technical data - electrical ratings

Voltage supply	24 VDC ±10 %
Current consumption	≤10 A
Nominal current	2.3 A
Starting current	Charging current capacitor 1500 uF
Operating current type	≤100 mA
Initializing time	≤1000 ms after power on
Positioning resolution motor	0.02 °
Positioning accuracy motor	±1 °
Repeat accuracy motor	0.3 °
Number of turns	262144 / 18 bit
Commutation	Sine
Undervoltage interruption	≤11.5 V
Terminating resistor	Manually set by DIP switch
Loop controller	Integrated position and speed regulator (4Q)
Sensing method	Magnetic
Number of pole pairs	4 = 8 poles
Reverse polarity protection	Bus electronics
Excess temperature protection	112 °C (final power output circuit)
Interference immunity	DIN EN 61000-6-2
Emitted interference	DIN EN 61000-6-4

Technical data - mechanical design

Dimensions (flange)	42 x 95 mm
Shaft	ø6 mm ø8 mm
Operating speed	≤4800 rpm
Nominal speed	4400 rpm
Nominal power output	36 W
Nominal torque	0.08 Nm
Starting torque	≤0.39 Nm
Service life	10000 h (without gear)
Protection DIN EN 60529	IP 42, IP 65 (sealed female D-SUB)
Ambient temperature	-15...+40 °C
Isolation class	B (+130 °C, DIN EN 60034-1)
Connection	Connector
Number of stages	1...3
Resistance	DIN EN 60068-2-6 Vibration DIN EN 60068-2-27 shock
Shaft surface	Smooth and round (without gear transmission); key (with gear transmission)
Material	Housing: zinc diecast, steel and aluminium
S1 continuous operation	DIN EN 60034-1
S3 intermittent operation	Power-on time 25 %, run time 1 min
Information	Nominal data at +40 °C ambient temperature for gearless motor. Service life at operating factor = 1.

MSIA 42 - CANopen

Part number

MSIA 42C2PL12-C43 [ ][ ][ ]

Gear reducer
- 000 Without gear transmission
- 007 6.75 : 1
- 025 25.01 : 1
- 046 45.56 : 1
- 169 168.84 : 1

Gearing variant
- K0 Without gear transmission
- P4 Planetary gear transmission

Protection
- B IP 42
- E IP 65 with sealed female D-SUB

Accessories

Connectors and cables

10164870	Female connector D-SUB, 9-pin, shielded, straight, cable 5 m, voltage supply / I/Os
10153493	Female connector D-SUB, 9-pin, straight, voltage supply and I/Os
10145023	Female connector D-SUB, 9-pin angled
10163483	Female connector D-SUB Kit, IP 65, 9-pin, straight
11002151	Cable, 10-wire, shielded, 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
10159388	Cable with male/female M12, 5-pin, shielded, straight, A-coded, 0.3 m (stub line)
10161398	Cable with male/female M12, 5-pin, shielded, straight, A-coded, 2 m
10161399	Cable with male/female M12, 5-pin, shielded, straight, A-coded, 5 m
10158246	Female connector M12, CAN, angled, A-coded, 2 m cable
10153968	Female connector M12, 5-pin, A-coded, straight
10145021	Female connector M12, 5-pin, CAN, angled
10153969	Cable connector M12, CAN, 5-pin, 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
10147798	USB-to-CAN adaptor

Motor-gearing-combination

Gear ratio	Torque nominal (Nm)		Rotational speed (rpm)		Admitted shaft load (N)		Weight (kg)	Length L (mm)	Positioning resolution (°)	Recordable revolutions	Max. transmission play (°)	Mmax gear (Nm)	Gear efficiency approx.
	S1	S3	S1	S3	axial	radial		axial					
-	0.08	0.16	4400	3760	20	50	0.7	93±1.5	0.022	262144	-	-	-
6.75	0.43	0.86	652	557	50	160	1.3	142±1.5	3.3×10^{-3}	38836	0.90	3.0	0.80
25.01	1.50	3.00	176	150	80	230	1.5	155±1.5	0.88×10^{-3}	10482	0.95	7.5	0.75
45.56	2.73	5.47	96.6	82.5	80	230	1.5	155±1.5	0.48×10^{-3}	5754	0.95	7.5	0.75
168.84	9.46	18.9	26.1	22.3	110	300	1.7	170±1.5	0.13×10^{-3}	1553	1.00	15.0	0.70

Further motor - gear combinations upon request.

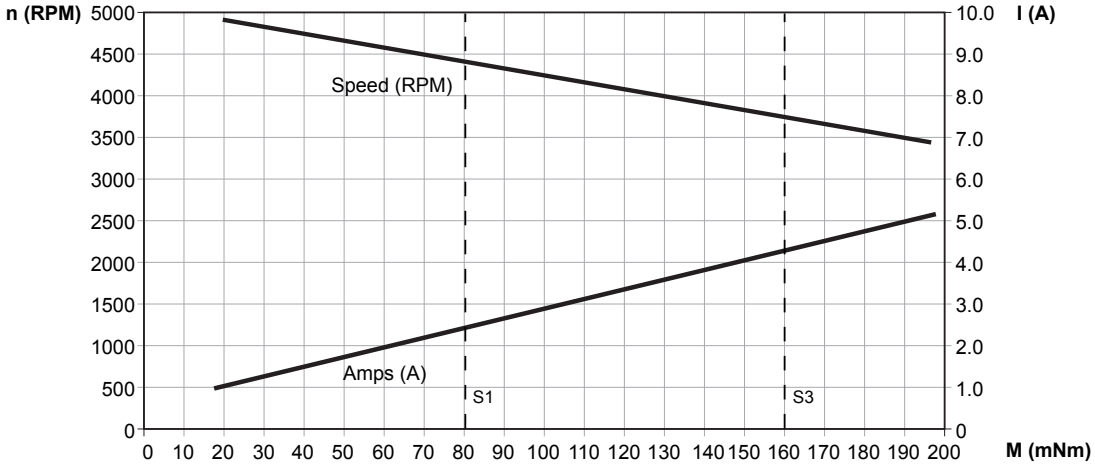
Positioning drives

DC motor, brushless

Absolute multiturn position detection, CANopen

MSIA 42 - CANopen

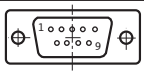
Characteristic load curve motor without gears



Terminal assignment

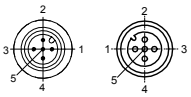
Connector – D-Sub, 9-pin

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



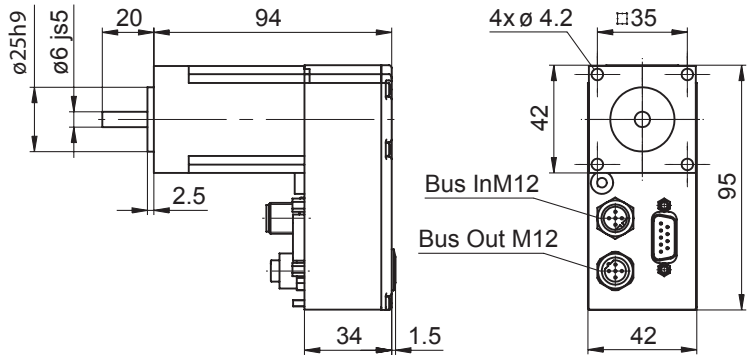
Technical data - communication

Interface	CANopen
Output circuit	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 insulation bus	Yes
Inputs	4 digitally programmable
Switching frequency Inputs	<500 Hz
Setting switch	Manual setting of bus address, baud rate and terminating resistor
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	Voltage monitoring Temperature control Self-diagnosis Position error Bus communication
Programming software	Yes
Default settings	50 kbit/s, Node ID 1, terminating resistor OFF

MSIA 42 - CANopen

Dimensions

MSIA 42 without gearing



MSIA 42 planetary gearing