Actuators

DC motor, brush-type

Quasi-absolute position detection, CANopen

MSQA 46 G42

MSQA 46 G42 connection radial

Features

- **Actuator / CANopen**
- **Brush-type DC motor**
- **Quasi-absolute position detection**
- **Nominal power output 20 W**
- **2 inputs programmable**
- **Fieldbus loops possible**
- **Separate communication and power supply**

Technical data - electrical ratings

Voltage supply	24 VDC ±10 %
Current consumption	≤4 A
Nominal current	1.4 A
Starting current	Charging current capacitor 56 uF
Operating current type	≤30 mA
Initializing time	≤1000 ms after power on
Positioning resolution motor	90 °
Positioning accuracy motor	±45 °
Number of turns	1073 mio / 30 bit
Undervoltage interruption	≤18 V
Terminating resistor	Manually set by DIP switch
Loop controller	Integrated position and speed regulator (1Q)
Sensing method	Magnetic
Reverse polarity protection	Bus electronics
Excess temperature protection	110 °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)	ø45 mm
Shaft	ø8 mm
Operating speed	≤3600 rpm
Nominal speed	3000 rpm
Nominal power output	20 W
Nominal torque	0.063 Nm
Starting torque	≤0.2 Nm
Service life	3000 h
Protection DIN EN 60529	IP 42
Ambient temperature	-15...+40 °C
Isolation class	F (+155 °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	Key
Material	Housing: aluminium, steel and plastic
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.

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Part number

MSQA 46C2P [ ] [**92-G42BPK**] [ ]

Gear reducer
- 007 6.75 : 1
- 025 25.01 : 1
- 046 45.56 : 1
- 169 168.84 : 1

Connecting direction
- A Axial
- R Radial

Accessories

Connectors and cables	
10123167	Female connector M9, 5-pin, straight, shielded, 5 m cable
10123171	Female connector M9, 5-pin, shielded, angled, 5 m cable, 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	radial					
6.75	0.3	1.1	444	197	5	15	0.9	138	152	13.3	159 Mio	1.70	0.8	0.8
25.01	1.2	3.7	120	53.2	10	30	1.0	151	165	3.6	42.9 Mio	1.75	2	0.75
45.56	2.2	6.7	65.8	29.2	10	30	1.0	151	165	2.0	23.5 Mio	1.75	2	0.75
168.84	7.4	23	17.8	7.9	30	45	1.1	174	188	0.5	6.3 Mio	1.80	4	0.7

Further motor - gear combinations upon request.

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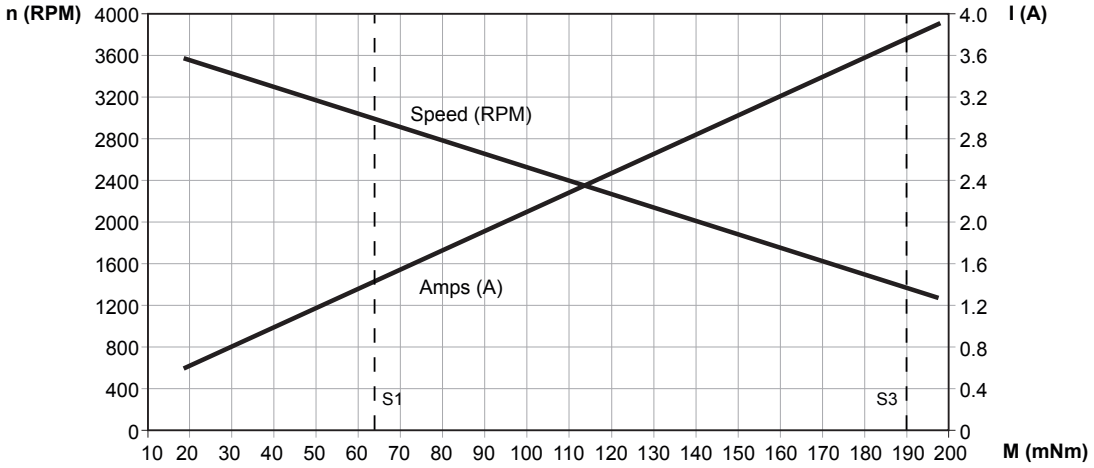
Characteristic load curve motor without gears



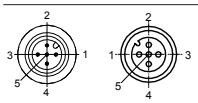
Terminal assignment

Connector – M9, 5-pin

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

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

Connector	Signal	Description
Pin 1	n.c.	–
Pin 2	+VsE	+24 VDC voltage supply electronic
Pin 3	CAN_GND / 0 VE	CAN Ground / 0 VDC voltage supply electronic
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	No
Inputs	2 digitally programmable
Switching frequency Inputs	<500 Hz
Setting switch	Manual setting of bus address, baud rate and terminating resistor
Operating modes	Position-controlled operation, Referencing
Diagnostic functions	Temperature control Self-diagnosis Position error
Programming software	Yes
Default settings	50 kbit/s, Node ID 1, terminating resistor OFF

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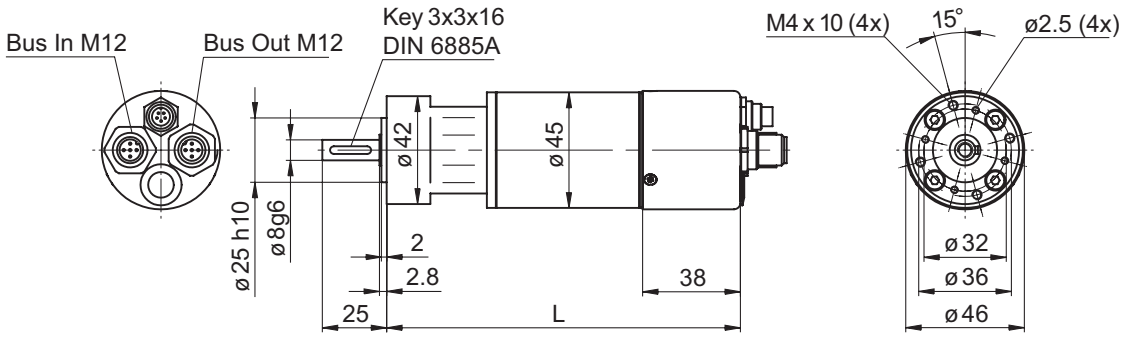
Dimensions

MSQA 46 G42 connection axial



MSQA 46 G42 connection radial