maxon motor

Choke Module

The choke module contains **3 linear storage chokes**. The design and the connection technology are particularly suitable for the combination with maxon EC motors. With brushed DC motors, the chokes are used in series connection. The storage choke increases the terminal inductance. This results in a smaller current ripple in PWM-operation (pulse width modulation) and therefore less self-heating of the motor.

Technical Data

Electrical data per linear storage choke
- Nominal DC current $I_N =$ 10A
- Inductance at I_N $L =$ 100µH
- DC current resistance $R_{Cu} =$ 23mΩ
- Max. current ripple $\Delta I =$ $0.3 \cdot I_N$

Temperature range   Operation   -25...70°C

Humidity range   20...75% non condensating

Mechanical data of choke module
- Weight: 250g
- Dimensions: L x W x H   90.0 x 70.0 x 49.7mm
- Mounting plate: for 4 screws M3
                    Pitch of hole   78 x 54mm

Connections
- PCB clamps   4 poles
  Pitch   5.08mm
  suitable for cable profile

                         multiple-
                         stranded wire $0.14...2.5\text{mm}^2$
                         single wire $0.14...4.0\text{mm}^2$

Dimension Drawing

Dimensions in [mm]

The latest edition of these operating instructions may be downloaded in the internet under
http://www.maxonmotor.com.

Pin Assignment

Plug input	Pin 1	Choke 1 input
	Pin 2	Choke 2 input
	Pin 3	Choke 3 input
	Pin 4	Shield

Plug output	Pin 1	Choke 1 output
	Pin 2	Choke 2 output
	Pin 3	Choke 3 output
	Pin 4	Shield

Examples

maxon EC motor
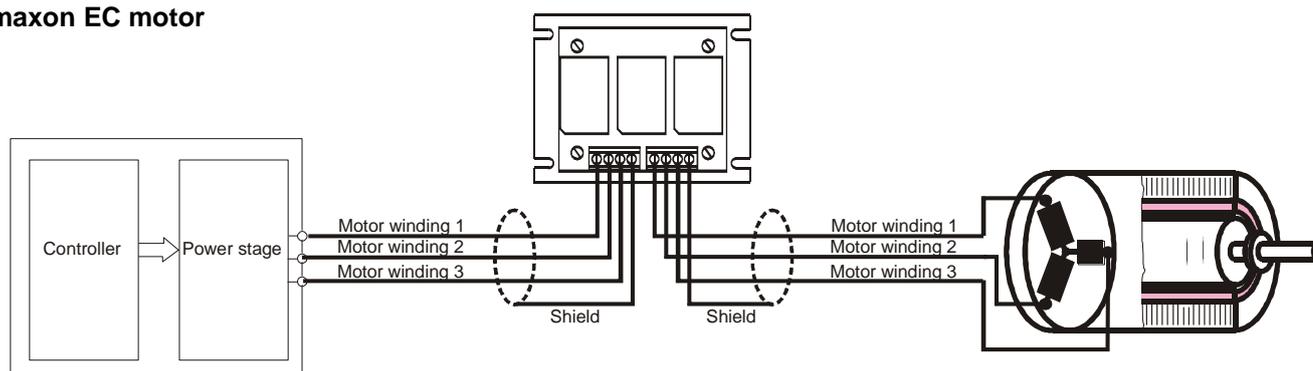
maxon DC motor
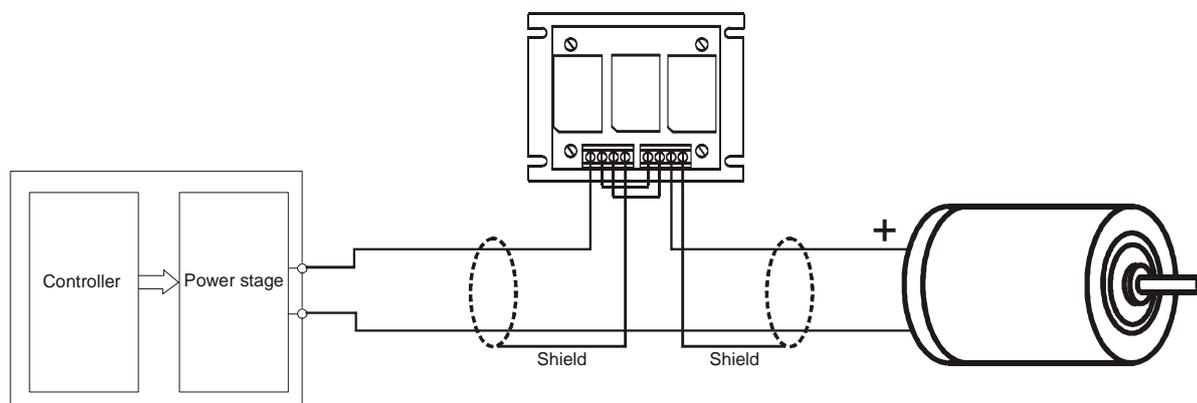
Sample Calculations

Motor type		**maxon *EC*-4pole 30**	**maxon DC motor RE 40**
Order number		305014	148866
Motor data			
Nominal current (max. continuous current):	I_{max}	6.79A	6.00A
Terminal inductance (phase-phase):	$L_{Motor(Ph-Ph)}$	0.0368mH	0.025mH
Linear storage choke data			3 pieces in series connection
Nominal DC current:	I_N	10.0A	10.0A
Inductance at I_N:	L_{Choke}	0.10mH	0.10mH
Total inductance:	$L_{Connection(Ph-Ph)}$	$L_{Motor(Ph-Ph)} + (2 \cdot L_{Choke})$	$L_{Motor(Ph-Ph)} + (3 \cdot L_{Choke})$
	$L_{Connection(Ph-Ph)}$	$0.0368mH + (2 \cdot 0.10mH)$	$0.0245mH + (3 \cdot 0.10mH)$
	$L_{Connection(Ph-Ph)}$	0.2368mH	0.3245mH
Continuous current check:	$I_{max} \le I_N$	6.79A < 10.0A	6.00A < 10.0A