Maximum recommended motor cable length

Operational functionality and motor cable length

The drive is designed to operate with optimum performance with the following maximum motor cable lengths.

Note: Conducted and radiated emissions of these motor cable lengths do not comply with EMC requirements.

Frame size	Maximum motor cable length, 4 kHz			
	Scalar control		Vector control	
	m	ft	m	ft
Standard drive, without external options				
R1	100	330	100	330
R2	200	660	200	660
R3	300	990	300	990
R4	300	990	300	990
R5	300	990	300	990
R6	300	990	300	990
R7	300	990	300	990
R8	300	990	300	990
R9	300	990	300	990

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Note 1: In multimotor systems, the calculated sum of all motor cable lengths must not exceed the maximum motor cable length given in the table.
Note 2: Longer motor cables cause a motor voltage decrease which limits the available motor power. The decrease depends on the motor cable length and characteristics. Contact ABB for more information.

EMC compatibility and motor cable length

To comply with the European EMC Directive (standard EN 61800-3), use the following maximum motor cable lengths at 4 kHz switching frequency. See the table below.

Frame size	Maximum motor cable length, 4 kHz	
	m	ft
EMC limits for Category C2 [1] **Standard drive with an internal EMC filter. See notes 1 and 2.**		
R1	100	330
R2	100	330
R3	100	330
R4	100	330
R5	100	330
R6	150	492
R7	150	492
R8	150	492
R9	150	492
EMC limits for Category C3 [1] **Standard drive with an internal EMC filter. See notes 3.**		
R1	150	492
R2	150	492
R3	150	492
R4	100	330
R5	100	330
R6	150	492
R7	150	492
R8	150	492
R9	150	492

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[1] See the terms in section *Definitions* on page *222*.

Note 1: Radiated and conducted emissions are according to category C2 with a internal EMC filter. The internal EMC filter must be connected.

Note 2: Categories C1 and C2 meet requirements for connecting equipment to the public low-voltage networks.

Note 3: Radiated and conducted emissions are according to category C3 with an internal EMC filter. The internal EMC filter must be connected.

Brake resistor connection data for frames R1…R3

Short-circuit protection (IEC/EN 61800-5-1, IEC 61439-1, UL 508C)

The brake resistor output is conditionally short-circuit proof by IEC/EN 61800-5-1 and UL 508C. Rated conditional short-circuit current as defined in IEC 61439-1.