

Frequency converter EFC 3610



Frequency converter

EFC 3610**Documentation**

- Power range 1 x AC 230 V 0.4 kW to 3 x AC 400 V 18.5 kW
- Integrated brake chopper and mains filter
- Integrated operating panel for simple, fast commissioning
- Expandability through I/O and fieldbus modules

Technical data

		EFC3610-0K40-1P2	EFC3610-0K75-1P2	EFC3610-1K50-1P2	EFC3610-2K20-1P2	EFC3610-0K40-3P4	EFC3610-0K75-3P4	EFC3610-1K50-3P4	EFC3610-2K20-3P4
Performance data									
Rated output HD operation	[kW]	0.4	0.75	1.5	2.2	0.4	0.75	1.5	2.2
Continuous rated current HD operation	[A]	2.4	4.1	7.3	10.1	1.3	2.3	4	5.6
Motor rated voltage		Three phase, 0 V ... mains voltage							
Output frequency		0 ... 400 Hz							
Mains connection voltage	1 AC	1 AC 200 ... 240 V (-10 % / +10 %)				3 AC 380 ... 480 V (-15 % / +10 %)			
	3 AC								
Frequency		50 ... 60 Hz (±5 %)							
Overload capacity HD operation		150 % for 60 s, 200 % for 1 s							
Brake chopper / resistor									
Braking resistance		External							
Brake chopper		Internal							
Environmental conditions									
Permissible temperature (operation)		-10 ... +45 °C (> 45 °C Derating 1.5 % of the output power per 1 °C from 45 ... 50 °C)							
Permissible humidity (operation)		< 90 % (no condensation)							
Max. operating height		1000 m (> 1000 m Derating 1 % of the output power pro 100 m)							
Protection category		IP 20							
Functions									
Control technology		V/f							
Pulse width modulation (PWM), adjustable in 1 kHz steps	[kHz]	1 ... 15							
Speed control range	Without pulse generator	1 : 50							
Start-up torque	V/f	100% at 1.5 Hz; 150% at 3 Hz							

Frequency converter

EFC 3610

Frequency resolution	Digital	0.01 Hz				
	Analog	1/1000 of the output frequency				
V/f curve		linear, quadratic, freely definable				
Ramps		linear, S-curve				
DC disc brake	Start frequency	0 ... 50 Hz				
	Braking time	0 ... 10 s				
Automatic PWM frequency adjustment		load-dependent adaptation of PWM frequency				
Integrated control		integrated step switching mechanism				
Frequency setting tolerance	Analog	0.4 %				
	Digital	0.04 %				
Controller		PID				
Bus systems		RS485				
		Modbus RTU				
		PROFIBUS (ext. option)				
Status messages via digital outputs		Operation, target value achieved, etc.				
Number of digital inputs 24 VDC		5 (of which 1x pulse train 50 kHz)				
Number of digital outputs 24 VDC / 50 mA		1 (pulse train 32 kHz)				
Number of relay outputs 230 VAC / 30 VDC / 3 A		1				
Number of analog inputs 0 ... 10 V or 0 ... 20 mA		2				
Number of analog outputs 0 ... 10 V or 0 ... 20 mA		1				
Display		Dust cover with 4 diagnostic LED				
		LED 5 digit (optional)				
		LCD (optional)				
Status LED		Rotation direction and operating status				
Weight						
Mass	[kg]	1.5	1.9	2.6	1.5	1.9
Norms and Standards						
Certification		CE UL cUL Gost R ↔ RCM				

		EFC3610-3K00-3P4	EFC3610-4K00-3P4	EFC3610-5K50-3P4	EFC3610-7K50-3P4	EFC3610-11K0-3P4	EFC3610-15K0-3P4	EFC3610-18K5-3P4
Performance data								
Rated output HD operation	[kW]	3	4	5.5	7.5	11	15	18.5
Rated output ND operation	[kW]	0		7.5	11	15	18.5	22
Continuous rated current HD operation	[A]	7.4	9.7	12.7	16.8	24.3	32.4	39.2

Frequency converter

EFC 3610

Continuous rated current ND operation	[A]	0	16.8	24.3	32.4	39.2	45
Motor rated voltage		Three phase, 0 V ... mains voltage					
Output frequency		0 ... 400 Hz					
Mains connection voltage	3 AC	3 AC 380 ... 480 V (-15 % / +10 %)					
Frequency		50 ... 60 Hz (±5 %)					
Overload capacity HD operation		150 % for 60 s, 200 % for 1 s					
Brake chopper / resistor							
Braking resistance		External					
Brake chopper		Internal					
Environmental conditions							
Permissible temperature (operation)		-10 ... +45 °C (> 45 °C Derating 1.5 % of the output power per 1 °C from 45 ... 50 °C)					
Permissible humidity (operation)		< 90 % (no condensation)					
Max. operating height		1000 m (> 1000 m Derating 1 % of the output power pro 100 m)					
Protection category		IP 20					
Functions							
Control technology		V/f					
Pulse width modulation (PWM), adjustable in 1 kHz steps	[kHz]	1 ... 15					
Speed control range	Without pulse generator	1 : 50					
Start-up torque	V/f	100% at 1.5 Hz; 150% at 3 Hz					
Frequency resolution	Digital	0.01 Hz					
	Analog	1/1000 of the output frequency					
V/f curve		linear, quadratic, freely definable					
Ramps		linear, S-curve					
DC disc brake	Start frequency	0 ... 50 Hz					
	Braking time	0 ... 10 s					
Automatic PWM frequency adjustment		load-dependent adaptation of PWM frequency					
Integrated control		integrated step switching mechanism					
Frequency setting tolerance	Analog	0.4 %					
	Digital	0.04 %					
Controller		PID					
Bus systems		RS485					
		Modbus RTU					
		PROFIBUS (ext. option)					
Status messages via digital outputs		Operation, target value achieved, etc.					
Number of digital inputs 24 VDC		5 (of which 1x pulse train 50 kHz)					

Frequency converter

EFC 3610

Number of digital outputs 24 VDC / 50 mA		1 (pulse train 32 kHz)						
Number of relay outputs 230 VAC / 30 VDC / 3 A		1						
Number of analog inputs 0 ... 10 V or 0 ... 20 mA		2						
Number of analog outputs 0 ... 10 V or 0 ... 20 mA		1						
Display		Dust cover with 4 diagnostic LED						
		LED 5 digit (optional)						
		LCD (optional)						
Status LED		Rotation direction and operating status						
Weight								
Mass	[kg]	2.6	3.9	4.3	5.7	6.4	8	
Norms and Standards								
Certification		CE UL cUL Gost R ↔ RCM						

Dimensions**Dimensions**

Type	A	B	C	D	F	G	ØH
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
EFC3610-0K40-1P2	95	66	166	156	167	159	4.5
EFC3610-0K75-1P2			206	196	170	162	
EFC3610-1K50-1P2							
EFC3610-2K20-1P2	120	80	231	221	175	167	
EFC3610-0K40-3P4	95	66	166	156	167	159	
EFC3610-0K75-3P4			206	196	170	162	
EFC3610-1K50-3P4							
EFC3610-2K20-3P4			231	221	175	167	
EFC3610-3K00-3P4	120	80	231	221	175	167	
EFC3610-4K00-3P4							
EFC3610-5K50-3P4	130	106	243	228	233	225	6.5
EFC3610-7K50-3P4							
EFC3610-11K0-3P4	150	125	283	265			
EFC3610-15K0-3P4							
EFC3610-18K5-3P4	165	140	313	295	241	233	

Ordering information

Frequency converter

EFC 3610

Type code	Description	Material number:
EFC3610-0K40-1P2-MDA-7P-NNNNN-NNNN	0.4 kW, 1 AC 200 ... 240 V, 50/60 Hz, 2.4 A, LED Display	R912005713
EFC3610-0K40-1P2-MDA-NN-NNNNN-NNNN	0.4 kW, 1 AC 200 ... 240 V, 50/60 Hz, 2.4 A, Dust cover	R912005698
EFC3610-0K75-1P2-MDA-7P-NNNNN-NNNN	0.75 kW, 1 AC 200 ... 240 V, 50/60 Hz, 4.1 A, LED Display	R912005714
EFC3610-0K75-1P2-MDA-NN-NNNNN-NNNN	0.75 kW, 1 AC 200 ... 240 V, 50/60 Hz, 4.1 A, Dust cover	R912005699
EFC3610-1K50-1P2-MDA-7P-NNNNN-NNNN	1.5 kW, 1 AC 200 ... 240 V, 50/60 Hz, 7.3 A, LED Display	R912005715
EFC3610-1K50-1P2-MDA-NN-NNNNN-NNNN	1.5 kW, 1 AC 200 ... 240 V, 50/60 Hz, 7.3 A, Dust cover	R912005700
EFC3610-2K20-1P2-MDA-7P-NNNNN-NNNN	2.2 kW, 1 AC 200 ... 240 V, 50/60 Hz, 10.1 A, LED Display	R912005716
EFC3610-2K20-1P2-MDA-NN-NNNNN-NNNN	0.4 kW, 1 AC 200 ... 240 V, 50/60 Hz, 2.4 A, Dust cover	R912005701
EFC3610-0K40-3P4-MDA-7P-NNNNN-NNNN	0.4 kW, 3 AC 380 ... 480 V, 50/60 Hz, 1.3 A, LED Display	R912005717
EFC3610-0K40-3P4-MDA-NN-NNNNN-NNNN	0.4 kW, 3 AC 380 ... 480 V, 50/60 Hz, 1.3 A, Dust cover	R912005702
EFC3610-0K75-3P4-MDA-7P-NNNNN-NNNN	0.75 kW, 3 AC 380 ... 480 V, 50/60 Hz, 2.3 A, LED Display	R912005718
EFC3610-0K75-3P4-MDA-NN-NNNNN-NNNN	0.75 kW, 3 AC 380 ... 480 V, 50/60 Hz, 2.3 A, Dust cover	R912005703
EFC3610-1K50-3P4-MDA-7P-NNNNN-NNNN	1.5 kW, 3 AC 380 ... 480 V, 50/60 Hz, 4.0 A, LED Display	R912005719
EFC3610-1K50-3P4-MDA-NN-NNNNN-NNNN	1.5 kW, 3 AC 380 ... 480 V, 50/60 Hz, 4.0 A, Dust cover	R912005704
EFC3610-2K20-3P4-MDA-7P-NNNNN-NNNN	2.2 kW, 3 AC 380 ... 480 V, 50/60 Hz, 5.6 A, LED Display	R912005720
EFC3610-2K20-3P4-MDA-NN-NNNNN-NNNN	2.2 kW, 3 AC 380 ... 480 V, 50/60 Hz, 5.6 A, Dust cover	R912005705
EFC3610-3K00-3P4-MDA-7P-NNNNN-NNNN	3,0 kW, 3 AC 380 ... 480 V, 50/60 Hz, 7,4 A, LED Display	R912005721
EFC3610-3K00-3P4-MDA-NN-NNNNN-NNNN	3,0 kW, 3 AC 380 ... 480 V, 50/60 Hz, 7,4 A, Staubschutzkappe	R912005706
EFC3610-4K00-3P4-MDA-7P-NNNNN-NNNN	4.0 kW, 3 AC 380 ... 480 V, 50/60 Hz, 9.7 A, LED Display	R912005722
EFC3610-4K00-3P4-MDA-NN-NNNNN-NNNN	4.0 kW, 3 AC 380 ... 480 V, 50/60 Hz, 9.7 A, Dust cover	R912005707
EFC3610-5K50-3P4-MDA-7P-NNNNN-NNNN	5.5 kW, 3 AC 380 ... 480 V, 50/60 Hz, 12.7 A, LED Display	R912005091
EFC3610-5K50-3P4-MDA-NN-NNNNN-NNNN	5.5 kW, 3 AC 380 ... 480 V, 50/60 Hz, 12.7 A, Dust cover	R912005708
EFC3610-7K50-3P4-MDA-7P-NNNNN-NNNN	7.5 kW, 3 AC 380 ... 480 V, 50/60 Hz, 16.8 A, LED Display	R912005092
EFC3610-7K50-3P4-MDA-NN-NNNNN-NNNN	7.5 kW, 3 AC 380 ... 480 V, 50/60 Hz, 16.8 A, Dust cover	R912005709
EFC3610-11K0-3P4-MDA-7P-NNNNN-NNNN	11 kW, 3 AC 380 ... 480 V, 50/60 Hz, 24,3 A, LED Display	R912005093
EFC3610-11K0-3P4-MDA-NN-NNNNN-NNNN	11 kW, 3 AC 380 ... 480 V, 50/60 Hz, 24,3 A, Staubschutzkappe	R912005710
EFC3610-15K0-3P4-MDA-7P-NNNNN-NNNN	15 kW, 3 AC 380 ... 480 V, 50/60 Hz, 32,4 A, LED Display	R912005094
EFC3610-15K0-3P4-MDA-NN-NNNNN-NNNN	15 kW, 3 AC 380 ... 480 V, 50/60 Hz, 32,4 A, Staubschutzkappe	R912005711
EFC3610-18K5-3P4-MDA-7P-NNNNN-NNNN	18.5 kW, 3 AC 380 ... 480 V, 50/60 Hz, 39.2 A, LED Display	R912005723

Frequency converter

EFC 3610

Type code	Description	Material number:
EFC3610-18K5-3P4-MDA-NN-NNNNN-NNNN	18.5 kW, 3 AC 380 ... 480 V, 50/60 Hz, 39.2 A, Dust cover	R912005712

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