

BLEMO® universal drive – for all applications with synchronous and asynchronous motors



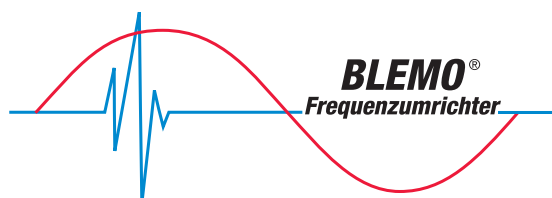
ER24B in bookform, ER24K in cubic form

Innovation

ER24 combines the successful ER23 and ER51 series. This new product series operates synchronous and asynchronous motors. With its outstanding functionality, the ER24 can be used for all tasks in mechanical and plant engineering. The extremely slim ER24B design is space-saving up to 4.0 kW. Flexible mounting options: vertical, side by side or horizontal. Integrated safety functions: STO, SLS, SS1, SMS, GDL. Programmable function blocks allow the execution of e.g. boolean and arithmetic functions, timers, counters, comparators and short automation sequences. Integrated synchronous motor function in open loop mode.

Standard features

- 4-digit 7-segment display
- optional multilingual plain text display
- 150 application-specific functions
- integrated PID controller
- and as setpoint potentiometer
- integrated are Modbus, CANopen, optional PROFIBUS DP V1, DeviceNet, EtherCAT, Ethernet/IP, Modbus TCP, POWERLINK and ProfiNet
- integrated EMC filter
- PTC thermistor input PTC, input STO (also two-channel)
- RoHs, WEEE compliant (recycling rate 88%)
- CE, UL, CSA, RCM, EAC, ATEX
- Lacquered circuit boards



Type ER24K and ER24B
 Frequency converter for speed adjustment from synchronous and asynchronous motors
 0.18 to 15.0 kW
 200 to 600 V, 1~ and 3~



Plain text display with door mounting kit protection class IP65



ER24 with recovery unit

Integrates security

Without additional external components

STO: Save Torque off

Free run-down of motor to a standstill by separating the motor torque.

SLS: Safely limited speed

Braking, maintaining a pre-defined speed.

SS1: Safe Stop

Stopping the motor according to a predefined, safely monitored ramp. Checks if the motor is completely stopped or has reached a minimum predefined speed, the activates the STO function.

SMS: Safe maximum speed (monitoring of two Engine speeds)

STO is activated when the speed limits are reached.

GDL: Guard door locking

Safe release of safety guards with delay of the safe output.

Safety Integrity Level (SIL 1, 2 or 3) in accordance ICE 61508 (part 1 and 2)

Performance Level (PL e) according to ISO 13849-1/-2 Category 3

Synchronous motors

The new control algorithm up to 599 Hz for permanent-magnet synchronous motors without feedback ensures optimized performance and easy connection of the motors. The sensorless vector-control sets the full torque from the smallest speeds available. The patented pole wheel position measurement supports all synchronous motor types and also stepper motors.

Device Overview ER24

Voltage	Type	Rated output kW	Cont. output current A	Short term overload current A	Power loss at full power W	Sizes		
						(HxWxD) mm	Mass kg	
1~200...240 V 50/60 Hz	ER24-0.18K(B)	0.18	1,5	2,3	24	143(325) x 75(45) x 109(232)	0,8(1,6)	
	ER24-0.37K(B)	0.37	3,3	5,0	41	143(325) x 75(45) x 128(232)	1,0(1,7)	
	ER24-0.55K(B)	0.55	3,7	5,6	46	143(325) x 75(45) x 138(232)	1,1(1,7)	
	ER24-0.75K(B)	0.75	4,8	7,2	50	143(325) x 75(45) x 138(232)	1,1(1,7)	
	ER24-1.1K(B)	1.1	6,9	10,4	74	143(325) x 105(60) x 158(234)	1,6(2,0)	
	ER24-1.5K(B)	1.5	8,0	12,0	90	143(325) x 105(60) x 158(234)	1,6(2,0)	
	ER24-2.2K(B)	2.2	11,0	16,5	123	143(325) x 105(60) x 158(234)	1,6(2,1)	
3~380...500 V 50/60 Hz	ER24-0.37/4K(B)	0,37	1,5	2,3	32	143(325) x 105(45) x 138(232)	1,2(1,6)	
	ER24-0.55/4K(B)	0,55	1,9	2,9	37	143(325) x 105(45) x 138(232)	1,2(1,7)	
	ER24-0.75/4K(B)	0,75	2,3	3,5	41	143(325) x 105(45) x 138(232)	1,2(1,7)	
	ER24-1.1/4K(B)	1,1	3,0	4,5	48	143(325) x 105(45) x 138(232)	1,3(1,7)	
	ER24-1.5/4K(B)	1,5	4,1	6,2	61	143(325) x 105(45) x 138(232)	1,3(1,7)	
	ER24-2.2/4K(B)	2,2	5,5	8,3	79	184(325) x 140(60) x 158(234)	2,1(2,1)	
	ER24-3.0/4K(B)	3,0	7,1	10,7	125	184(325) x 140(60) x 158(234)	2,1(2,1)	
	ER24-4.0/4K(B)	4,0	9,5	14,3	150	184(325) x 140(60) x 158(234)	2,2(2,2)	
	ER24-5.5/4K	5,5	14,3	21,5	232	232 x 150 x 232	4,2	
	ER24-7.5/4K	7,5	17,0	25,5	269	232 x 150 x 232	4,4	
	ER24-11.0/4K	11,0	27,7	41,6	397	330 x 180 x 232	6,8	
	ER24-15.0/4K	15,0	33,0	49,5	492	330 x 180 x 232	6,8	
	3~200...240 V 1~200...240 V* 50/60 Hz	ER24-0.18/3K	0,18	1,5	2,3	23	143 x 72 x 109	0,8
ER24-0.37/3K		0,37	3,3	5,0	38	143 x 72 x 128	0,9	
ER24-0.55/3K		0,55	3,7	5,6	43	143 x 72 x 138	1,0	
ER24-0.75/3K		0,75	4,8	7,2	55	143 x 72 x 138	1,0	
ER24-1.1/3K		1,1	6,9	10,4	71	143 x 105 x 138	1,4	
ER24-1.5/3K		1,5	8,0	12,0	86	143 x 105 x 138	1,4	
ER24-2.2/3K		2,2	11,0	16,5	114	143 x 105 x 138	1,4	
ER24-3.0/3K		3,0	13,7	20,6	146	184 x 140 x 158	2,2	
ER24-4.0/3K		4,0	17,5	26,3	180	184 x 140 x 158	2,2	
ER24-5.5/3K		5,5	27,5	41,3	292	232 x 150 x 178	3,5	
ER24-7.5/3K		7,5	33,0	49,5	388	232 x 150 x 178	3,6	
ER24-11.0/3K		11,0	54,0	81,0	477	330 x 180 x 198	6,8	
ER24-15.0/3K		15,0	66,0	99,00	628	330 x 180 x 198	6,9	
3~525...600 V 50/60 Hz		ER24-0.75/3K	0,75	1,7	2,6	36	143 x 105 x 158	1,4
		ER24-1.5/3K	1,5	2,7	4,1	48	143 x 105 x 158	1,4
	ER24-2.2/3K	2,2	3,9	5,9	62	184 x 140 x 158	2,2	
	ER24-4.0/3K	4,0	6,1	9,2	94	184 x 140 x 158	2,2	
	ER24-5.5/3K	5,5	9,0	13,5	133	232 x 150 x 178	3,5	
	ER24-7.5/3K	7,5	11,0	16,5	165	232 x 150 x 178	3,6	
	ER24-11.0/3K	11,0	17,0	25,5	257	330 x 180 x 198	6,8	
	ER24-15.0/3K	15,0	22,0	33,0	335	330 x 180 x 198	6,9	

*For single-phase mains connection, one unit size higher must be chosen

Device types in bold print: Preferred type, available from stock. Subject to prior sale.

Technical Data

Network connection

Voltage: (tolerance -15%/+10%):

1-phase 200 to 240 V (0.18-2.2 kW)

1-phase and 3-phase, 200 to 240 V (0.18-15.0 kW)

3-phase, 380 to 500 V (0.37-15.0 kW)

3-phase, 525 to 600 V (0.75-15.0 kW)

Frequency: 50/60 Hz \pm 5

Motor connection

Voltage: 3-phase, 0 to max. UN mains

Output frequency: 0.1 to 599 Hz

Overload torque: max. 170...200% of motor load torque

Max. overload current: 150% of rated current for 60 sec.

Braking torque: 30% of the rated motor torque without braking resistor. Up to 150% with optional braking resistor (brake chopper integrated as standard)

Nominal motor frequency: 40 to 599 Hz

Clock frequency: 2 to 16 kHz (factory setting 4 kHz)

Ramp times: 0.05 to 6000 sec.

Control ports

3 analog inputs:

AI1: 0...+10 V, R_i = 30 k Ω , (also programmable as digital input)

AI2: -10 V...+10 V, R_i = 30 k Ω , (also programmable as digital input) AI3: 0(4) - 20 mA, R_i = 250 Ω

1 analog output:

programmable as current or voltage output

AQ1: 0(4)...20 mA, R_i = 800 Ω ; 0...10 V, R_i = 470 Ω

(also programmable as digital output)

1 logic output:

DQ+/DQ-: open collector, max. 30 VDC

6 programmable digital inputs:

DI1...DI6: supply +24 VDC (min./max. 19/30 VDC),

internal or external, PLC compatibility level 1, EN61131-2;

DI5 can be used as pulse input with 20 kHz;

DI6 can be used as PTC input.

1 input STO:

Safe Stop (STO) 2...30 VDC, R_i = 1.5 k Ω

1 input for external power supply:

P24: 24 VDC, max. 1.1 A

2 programmable relay outputs:

R1: 1 changeover contact, min. 10 mA at 5 VDC,

max. 5 A at 250 VAC and 30 VDC and ohm. Load

R2: 1 contact S, min. 10 mA at 5 VDC,

max. 5 A at 250 VAC and 30 VDC and ohm. Load

2 internal voltage sources:

+24 VDC, max. 100 mA

+10 VDC, max. 10 mA

Integrated communication protocols:

Modbus, CANopen

Ambient conditions

Ambient temperature:

-10 to +50°C without power reduction

+50 to +60°C with power reduction

Storage temperature: -25 to +70°C

Relative humidity: <95%, no condensation

Installation altitude: max. 1000 m above sea level, above 1000 m the interior temperature must be reduced by 1 % for each additional 100 m

Protection class:

K: IP41 from above, IP20 without protective cover on top.

B: IP20 according to EN61800-5-1

Standards and approvals:

IEC/EN 61800-5-1, IEC/EN 61800-3 (environments 1 and 2, categories C2),

UL508C, EN 954-1 category 3, ISO/EN13849-1/-2 category 3 (PL e), IEC 61800-

5-2, IEC 61508 (parts 1+2) safety levels SIL2 and SIL3, draft standard EN

50495E, IEC 60721-3-3, classes 3C3 and 3S2

CE, UL, CSA, RCM, EAC, ATEX

Integrated safety functions according to IEC 61508:

STO, SLS, SS1, SMS, GDL

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