

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



ER24G-V2

### Standard features

- 150 application-specific functions
- Lacquered boards
- RoHs, WEEE compliant (recycling rate: 88%)
- CE, UL, CSA, RCM, EAC, ATEX

### Integrated:

- 4-digit 7-segment display
- EMC filter (IEC 61800-5-1)
- PTC thermistor input PTC
- Input SO (also two-channel)
- PID controller
- Modbus, CANopen

### Optional:

- Multilingual plain text display
- PROFIBUS DP V1, DeviceNet, EtherCAT, Ethernet/IP, Modbus TCP, POWERLINK and ProfiNet

### Type ER24G

Frequency converter  
in protection class IP65/66  
For speed adjustment from  
synchronous and  
asynchronous motors  
0.18 to 7.5 kW  
200 to 500 V, 1~ and 3~

### Innovation

The ER24G is the further development of the successful ER22G series. This new product series operates synchronous and asynchronous motors. With its outstanding functionality, the ER24G can be used for all tasks in mechanical and plant engineering. New features are the integrated safety functions STO, SLS, SS1, SMS and GDL, a direct PTC input and an integrated synchronous motor function in open loop mode. Programmable function blocks enable the execution of e.g. boolean and arithmetic functions, timers, counters, comparators and short automation sequences.

The protection class has been increased to IP66 for version 1 (V1) and to IP65 for version 2 (V2) with integrated switches.

### 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.

### 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)

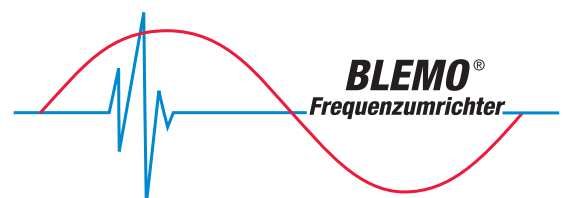
STO is activated when the speed limits are reached.

#### 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



## Device Overview ER24-...GV1/V2

Voltage	Type	Rated output kW	Cont. output current A	Short term overload current A	Power loss at full power W	Sizes K/B (HxWxD) mm	Mass *kg
1~200...240 V 50/60 Hz	ER24-0.18G	0.18	1.5	2.3	22	250 x 340 x 182	5.0
	ER24-0.37G	0.37	3.3	5.0	32	250 x 340 x 182	5.1
	ER24-0.55G	0.55	3.7	5.6	42	250 x 340 x 182	5.1
	ER24-0.75G	0.75	4.8	7.2	48	250 x 340 x 182	5.1
	ER24-1.1G	1.1	6.9	10.4	66	250 x 340 x 235	7.4
	ER24-1.5G	1.5	8.0	12.0	82	250 x 340 x 235	7.4
	ER24-2.2G	2.2	11.0	16.5	110	250 x 340 x 235	7.4
3~380...500 V 50/60 Hz	ER24-0.37/4G	0.37	1.5	2.3	28	250 x 340 x 200	5.9
	ER24-0.55/4G	0.55	1.9	2.9	33	250 x 340 x 200	5.9
	ER24-0.75/4G	0.75	2.3	3.5	38	250 x 340 x 200	5.9
	ER24-1.1/4G	1.1	3.0	4.5	47	250 x 340 x 200	6.0
	ER24-1.5/4G	1.5	4.1	6.2	61	250 x 340 x 200	6.0
	ER24-2.2/4G	2.2	5.5	8.3	76	250 x 340 x 235	7.7
	ER24-3.0/4G	3.0	7.1	10.7	94	250 x 340 x 235	7.7
	ER24-4.0/4G	4.0	9.5	14.3	112	250 x 340 x 235	7.8
	ER24-5.5/4G	5.5	14.3	21.5	233	320 x 521 x 300	22.0
	ER24-7.5/4G	7.5	17.0	25.5	263	320 x 521 x 300	22.0

\*For version 2, 400g are added

## Technical Data

### Network connection

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

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

3-phase, 380 to 500 V (0.37-7.5 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. Up to 220% of motor load torque

**Max. overload current:** 150% of rated current during 60 sec.

**Braking torque:** 30% of the rated motor torque without braking resistance; up to 150% with optional braking resistor (brake chopper integrates 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, Ri = 30 k $\Omega$ , (also programmable as digital input)

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

#### 1 analog output:

programmable as current or voltage output

AQ1: 0(4)...20 mA, Ri = 800  $\Omega$ ; 0...10 V, Ri = 470  $\Omega$

(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, Ri = 1.5 k $\Omega$

#### 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

**Max. pollution degree:** Boards according to IEC 60721-3-3 class 3C3 and 3S2 coated

#### Protection class:

ER24-...G-V1: IP 66; ER24-...G-V2: IP65

#### Approvals:

CE, UL, CSA, RCM, EAC, ATEX

IEC/EN 61800-5-1, IEC/EN 61800-3 (environments 1

and 2, categories C2), UL508C, EN 954-1 category 3,

ISO/EN 13849-1/-2 category 3 (PL e), IEC 61800-5-2,

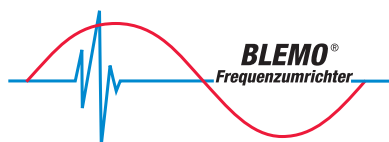
IEC 61508 (parts 1+2) safety levels SIL2 and SIL3

**Integrated safety functions** according to IEC 61508:

STO, SLS, SS1, SMS, GDL



ER24G-V1



**BLEMO®**

**Frequency converter**

Siemensstraße

D-63110 Rodgau-Dudenhofen

Tel.: +49 61 06/82 95-0

Fax: +49 61 06/82 95-20

info@blemo.com

www.blemo.com