

**BLEMO® frequency converter ER24-...G-V1/V2**

# *The universal drive for all applications with synchronous and asynchronous motors*

Frequency converter with IP65/66 protection for speed adjustment of synchronous and asynchronous motors. 0.18 to 7.5 kW; 200 to 500V, 1-phase and 3-phase.



**ER24G-V2 IP65,**  
Setpoint potentiometer, start/stop or  
direction selector switch, and repair  
switch can be locked

**ER24G-V1 IP66**  
without switch

## **ROBUST DRIVE TECHNOLOGY FOR THE HIGHEST DEMANDS**

The BLEMO® ER24G is the innovative drive solution that takes your machines and systems to a new level of performance.

As a modern development of the proven ER22G series, the ER24G offers outstanding functionality and maximum operational reliability – ideal for demanding industrial environments. With protection class IP66 (version V1) or IP65 (version V2), it defies even the harshest conditions and ensures reliable control of synchronous and asynchronous motors.

Version 1 impresses with its compact, robust design without integrated switches – perfect for applications where simple and reliable control is paramount. However, those who value additional ease of use should opt for version 2, which, in addition to IP65 protection, also offers an integrated potentiometer, a start/stop switch, and a main switch. These enhancements enable intuitive operation and optimize your process control.

Thanks to the new control algorithm, synchronous motors up to 599 Hz can be precisely controlled. Sensorless vector control ensures full torque even at the lowest speed, while the patented rotor position measurement ensures optimal performance for all synchronous motor types and even stepper motors. Integrated safety functions such as STO, SLS, SS1, SMS, and GDL ensure safe operation without additional hardware, and a direct PTC input ensures reliable temperature monitoring.

### **Integrated security Without additional components**

#### **STO: Safe Torque Off**

Free coasting to standstill by disconnecting the motor torque.

#### **SLS: Safely reduced speed**

Braking, maintaining a predefined speed.

#### **SS1: Secure hold**

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

#### **SMS: Safe monitoring of two engine speeds**

STO is activated when the limit speeds are reached.

#### **GDL: Safe release of protective doors**

Safe control of safety doors with a safe exit delay. Safety Integrity Level (SIL 1, 2, or 3) according to IEC 61508 (Parts 1 and 2) Performance Level (PL e) according to ISO 13849-1/-2.

## **STANDARD FEATURES**

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

### **Integrated:**

- External fanless design, 50°C without derating, PLC integrated
- 4-digit 7-segment display
- EMV filter (IEC 61800-5-1)
- PTC thermistor input
- STO input (also two-channel)
- PID controller
- Modbus RJ45 and CANopen RJ45

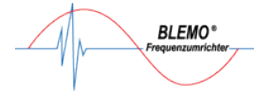
### **Optionally:**

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

## **APPLICATION EXAMPLES**

- Torque-dependent drives
- Conveyor technology
- lifting technology
- Pumps and fans
- mechanical and plant engineering

## DEVICE OVERVIEW ER24-...G-V1/V2



| Mains voltage | Type designation | Rated power<br>(kW) | Continuous output current<br>(A) | Short-term overload current<br>(A) | Power loss at full load<br>(W) | Mass<br>(BxHxT) | Weight*<br>(Kg) |
|---------------|------------------|---------------------|----------------------------------|------------------------------------|--------------------------------|-----------------|-----------------|
| 1~200...240 V | ER24-0.18G       | 0,18                | 1,5                              | 2,3                                | 22                             | 250 x 340 x 182 | 5,0             |
| 50/60 Hz      | 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 | ER24-0.37/4G     | 0,37                | 1,5                              | 2,3                                | 28                             | 250 x 340 x 200 | 5,9             |
| 50/60 Hz      | 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, 0.4 kg is added.

## TECHNICAL DATA

### Mains 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 ± 5%

### Motor connection

- **Voltage:** 3-phase, 0 to max.  $U_{\text{Mains}}$
- **Output frequency:** 0.1 to 599 Hz
- **Overload torque:** max. up to 220% of motor load torque
- **Max. overload current:** 150% of the rated current for 60 seconds.
- **Braking torque:** 30% of the rated motor torque without braking resistor; up to 150% with optional braking resistor (braking chopper integrated as standard)
- **Rated motor frequency:** 40 to 599 Hz
- **Clock frequency:** 2 to 16 kHz (factory setting 4 kHz)
- **Ramp times:** 0.05 to 6000 sec.

### Control connections

- **3 analog inputs:** AI1: 0...+10 V,  $R_i = 30 \text{ k}\Omega$ , (also programmable as digital input); AI2: -10 V...0...+10 V,  $R_i = 30 \text{ k}\Omega$ , (also programmable as digital input); AI3: 0(4) - 20 mA,  $R_i = 250 \Omega$
- **1 analog output:** programmable as current or voltage output, AQ1: 0(4)...20 mA,  $R_i = 800 \Omega$ ; 0...10 V,  $R_i = 470 \Omega$  (also programmable as digital output)
- **1 logic output:** DQ+/DQ-: open collector, max. 30 VDC
- **6 programmable digital inputs:** DI1...DI6: +24 VDC supply (min./max. 19/30 VDC), internal or external, PLC compatibility level 1, EN61131-2; DI5 can be used as a 20 kHz pulse input; DI6 can be used as a PTC input.
- **1 STO input:** Safe Stop (STO) 2...30 VDC,  $R_i = 1.5 \text{ k}\Omega$
- **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 resistive load. R2: 1 contact S, min. 10 mA at 5 VDC, max. 5 A at 250 VAC and 30 VDC and resistive load.

- **2 internal voltage sources:** +24 VDC, max. 100 mA, +10 VDC, max. 10 mA
- **Integrated communication protocols:** Modbus, CANopen

### Environmental conditions

- **Ambient temperature:** -10 to +50°C without derating, +50 to +60°C with derating
- **Storage temperature:** -25 to +70°C
- **Relative humidity:** <95%, no condensation
- **Installation altitude:** max. 1000 m above sea level. Above 1000 m, the indoor altitude must be reduced by 1% for every additional 100 m.
- **Max. pollution degree:** PCBs coated according to IEC 60721-3-3 Class 3C3 and 3S2

### Protection class:

- ER24-...G-V1: IP 66; ER24-...G-V2, V4 and V7: 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

## Do you have any questions about the ER24-...G-V1/V2?

Contact us! We're happy to help! The operating instructions and further information on the ER24-...G and all BLEMO® products can be found at

**[www.blemo.com](http://www.blemo.com)**