# ACCU ELECTRIC MOTORS INC

USA: (888) 932-9183 CANADA: (905) 829-2505

- Over 100 years cumulative experience
- 24 hour rush turnaround / technical support service
- Established in 1993

The leading independent repairer of servo motors and drives in North America.

Visit us on the web:

www.servo-repair.com

www.servorepair.ca

www.ferrocontrol.com
www.sandvikrepair.com
www.accuelectric.com

Scroll down to view your document!

For 24/7 repair services :

USA: 1 (888) 932 - 9183
Canada: 1 (905) 829 -2505

Emergency After hours: 1 (416) 624 0386

Servicing USA and Canada

# Brief introduction BG 65 SI

## 1 Description

- Brushless DC - drive with integrated speedcontroller
- 4 digital inputs and 2 digital outputs as well as one analog input
- precast application orientated mode
- Control range 1 bis 7000 min_1
- Control voltage 20 - 50 V
- Integrated encoder with 4096 signals per revolution

## 2 Specification

**Power data**

| | BG 65x25 SI | BG 65x50 SI | BG 65x75 SI |
|---|---|---|---|
| Nominal voltage (VDC) | 24 | 24 | 42 |
| Nominal power (W) | 65 | 100 | 140 |
| Nominal torque(Ncm) | 17 (21*) | 26 (31*) | 40 (47*) |
| Rated speed (rpm) | 3100 | 3100 | 2860 |
| Nominal current (A) | 4 | 5,6 | 4,5 |
| Length (connector/ lead version) in mm | 107 / 90 | 132 / 115 | 157 / 140 |
| Weight (g) | ca. 950 | ca. 1300 | ca. 1800 |

*) The nominal torque depends on the motor‘s heat dissipation. The tables thus list the values taken in accordance with VDE (the German Electrical Engineers’ Association) / EN (European Standard) and taken during the installation of a thermally-conductive steel plate with the dimensions 105x105x10mm (data inbrackets).

**Electrical data**

| | |
|---|---|
| Maximum motor speed range | 0 ... 7000 U/min |
| Speed range adjustable | 70 ... 4096 U/min |
| Minimum motor voltage | 20 V DC |
| Maximum motor voltage at 24 V-version | 30 V DC |
| Maximum motor voltage at 42 V-version | 50 V DC |
| Maximum ripple on supply voltage | Max. 5 % |
| Undervoltage shutdown | < 19 V |
| Demolition boundary at 24 V- version | > 35 V |
| Demolition boundary at 42 V- version | > 55 V |
| Required external fuse | 8 AT external |
| Over-temperature protection | > 100°C at the power output stage |
| Max. peak current (motor) | 27 A |
| Current consumption of 24 V-logic supply | 40 mA (only motors with 42 V- or 60 V-operating voltage) |

**Mechanical data**

| | |
|---|---|
| Temperature range motor | -20 °C ... +100 °C housing temperature |
| Recommended environmental temperature range *) | 0 °C ... 50 °C |
| Relative humidity (not condensing) | Max. 90% |
| Protection class **) | IP50 (in special versions up to IP65) |
| Connector plug 12-pole ***) | Round connector according DIN 45326, company Binder, series 723 |



Brief introduction BG65SI

## 3 Details

The brief introduction describes the mechanical and electrical data, as well as the connector assignment of the drive.
It is to pay attention to the safety regulations and preventive measures which have to be used.

The brief introduction does not contain a manual of the drive.
The complete manual BG 65 SI can be requested or is available via download in the internet.

### Liability exclusion

For damage or injuries from inappropriate, negligent or wrong handling of the drive, the manufacturer don‘t be liable.

### Modification

Technical changes or changes at the drive may be made only with explicit, written permission of the company Dunkermotoren.

### Service & Support

Dunkermotoren
Allmendstr. 11
79848 Bonndorf
Germany

Tel: + 49 (0) 7703 930 0
Fax: + 49 (0) 7703 930 210
Email: sales.de@dunkermotoren.de

Homepage: www.dunkermotoren.de

## 4 Safety

### Proper use

The BG 65 SI is a vendor part and may be used in the configuration described in machines and plant (industrial sector).
The drive must be securely mounted and must only be used with the cables and accessories specified by Dunkermotoren.
The drive may only be put into service after the complete system has been installed with due attenti on to EMC aspects.

### Transport and conditions of storage

Check the drive with distribution for damages.
To ensure trouble-free operation, appropriate methods of transport and conditions of storage must be employed.
The drive have to be stored, protected from dust, dirt and moisture.
Pay attention to the climate conditions given in the table „Mechanical data“
(Storage temperature and humidity).

### Group of persons

The drive must only be installed and adjusted by qualified persons in accordance with the relevant standards.
Qualified persons are familiar with the relevant standards, rules, and accident-prevention regulations which must be observed when working with such equipment.
Qualified persons are those who:
- on the basis of their experience, can recognise and avoid potential dangers;
- are familiar with the accident-prevention regulations for the equipment employed; and
- are able to connect circuits and install equipment in accordance with the standards and regulations.

### Ballast circuit

During braking operations, kinetic energy is stored as electrical energy in an intermediate part of the regulation circuit. This can cause excessive voltage in the intermediate circuit, which, in an extreme case, could cause damage to electrical components.
For prevention a bridge rectifier and a smoothing capacitor (Construction unit for the smoothing of voltage fluctuations) should be used.

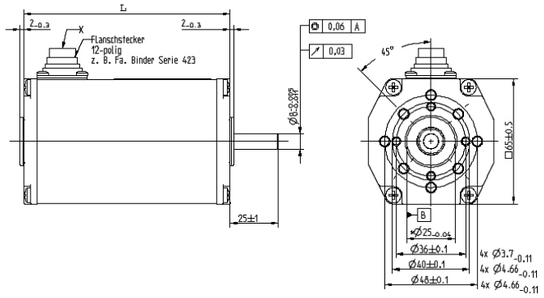
**Warning**
If there is frequent heavy braking, the ballast resistor, and in consequence other circuit components, may be overloaded and damaged if appropriate measures are not taken to prevent excessive voltage (see „Smoothing capacitor“, above, possibly external brake resistor).

### Wiring

Consider the local regulations for wiring, protection and EMC.
Use only specified cables of the company Dunkermotoren.

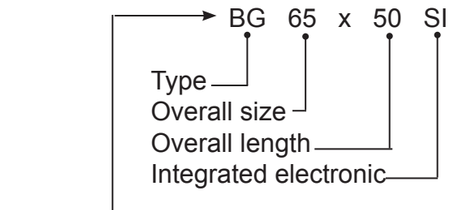
Alcatel·Lucent

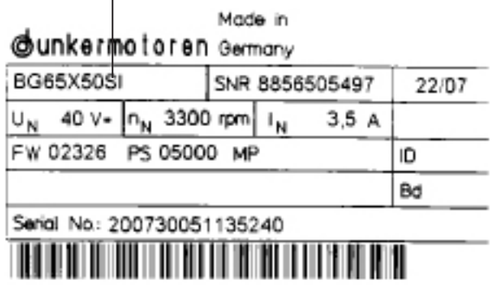
# 5 Drive dimension




| | L |
|---|---|
| BG 65x25 SI | 107 ± 0.8 |
| BG 65x50 SI | 132 ± 0.8 |
| BG 65x75 SI | 157 ± 0.8 |

# 6 Identification




SNR = code number

$U_N$ = Nominal voltage

$n_N$ = Rated speed

$I_N$ = Nominal current

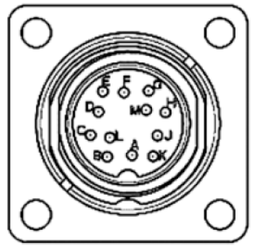
The identification plate is on the drive and provides for orientation (Exact data are to be read under „Specification“).

# 7 Installation/terminal assignment

**Attention**
During installation, ensure that connectors are not damaged. Bent pins can cause a short circuit and destroy the drive.

# 8 Connector plug

**Motor power supply and signal interface supply:**
Round plug to DIN 45326, Binder, Serie 723
The 12-pin drive connector serves for the motor power stage and the electronic supply.



Connection 24 V-motors:

| Connector-Pin | Connection | Strand colour of the connecting cable with 12-pole angular connector (*) |
|---|---|---|
| E+F | $U_E$ | red (1 mm²) |
| D* | IN4 | green |
| M+G | Gnd | black (1 mm²) |
| B | IN1 | yellow |
| C | IN2 | blue |
| J | AI+ | pink |
| H | AI- | violet |
| A | OUT1 | orange |
| K | OUT3 | white |
| L | IN3 | brown |

**Note: At the 42 V-motors the inputs IN3 and IN4 do not exist!**





Connection 42 V-motors:

| Connector-Pin | Connection | Strand colour of the connecting cable with 12-pole angular connector (*) |
|---|---|---|
| E+F | $U_E$ | red (1 mm²) |
| D | $U_C$ | green |
| M+G | Gnd | black (1 mm²) |
| B | IN1 | yellow |
| C | IN2 | blue |
| J | AI+ | pink |
| H | AI- | violet |
| A | OUT1 | orange |
| K | OUT2 | white |
| L | OUT3 | brown |

(*) Lead colours refers to standard connection cables of Dunkermotoren.

**Function of the digital inputs IN1 & IN2:**

| IN1 | IN2 | Function |
|---|---|---|
| 0 | 0 | Controlling not active, output stage not provided with current, no holding torque |
| 1 | 0 | Counter clockwise rotation (motor shaft turns counter clockwise) |
| 0 | 1 | Clockwise rotation (motor shaft turns clockwise) |
| 1 | 1 | Stop with holding torque |

**Function of the digital inputs IN3 & IN4:**

| IN3 | IN4 | Function |
|---|---|---|
| 0 | 0 | Controlled motor speed mode (70 ... 4096 rpm adjustable via analogue input) |
| 0 | 1 | Uncontrolled operation (70 ... approx. 6500 rpm adjustable via analogue input) |
| 1 | 0 | Fix adjusted, controlled motor speed spd1 = 200 rpm |
| 1 | 1 | Fix adjusted, controlled motor speed spd2 = 2500 rpm |

**Function of the pulse output OUT1:**

The pulse output provides 15 impulses per motor turn. As a result of the generation of the pulses via sampling, a fuzziness of up to 100 ms arises at the flanks, so that a measurement of the pulses duration larger than 1 pulse is not adequate for designation of the motor speed.

**Function of the fault output OUT3:**

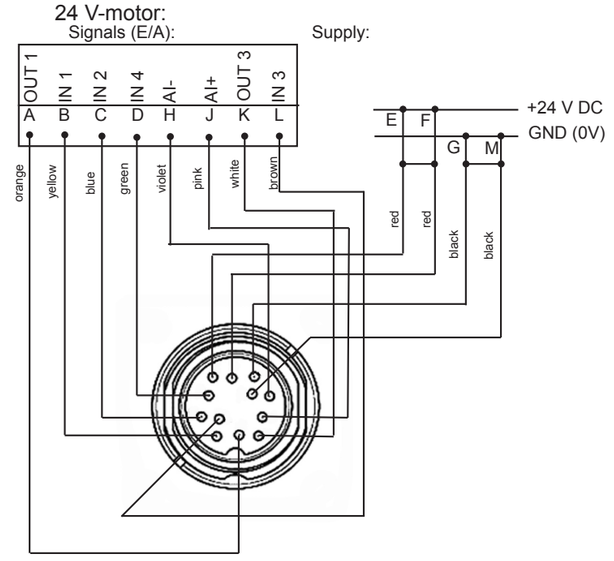
Serves as signal for faults.

| /fault | Description |
|---|---|
| 0 | fault |
| 1 | no fault |

The output displays a disturbing signal when reaching a limit value (OUT3=0).
Here the protective functions over-temperature protection, undervoltage protection, current limitation and blocking protection are considered.

# 9 Connection schematic

24 V-motor:




42 V-motor: