

Operating instructions Speed Control Units, Type DSG 3.230 KA BA 13897 E

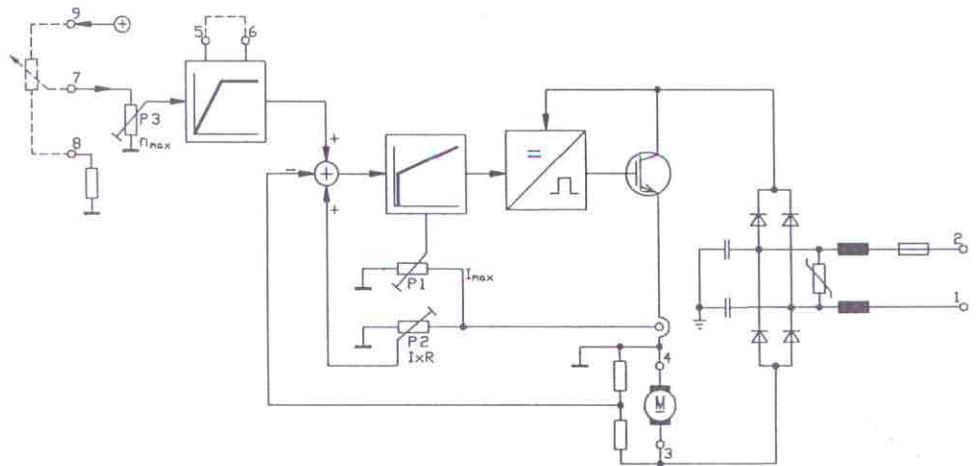
The speed control unit must be connected by a skilled electrician in accordance with the details on the rating plate and the circuit diagram in the operating instructions. The electrical and mechanical safety regulations must be observed.

Type description

The speed control unit DSG 3.230 KA is suitable for the stepless speed control of direct current permanent magnet motors. Control of the armature voltage makes the speed independent of the mains voltage. The adjustable $I \cdot R$ compensation keeps the speed largely constant, even when the load changes.

The speed control unit is a single-quadrant unit. This means that generator operation is not possible.

The speed control unit was developed for installation in the motor's terminal box and the setpoint and release control terminals are therefore not electrically isolated from the mains potential!



Principal circuit diagram

The setpoint potentiometer can be fitted in the terminal box cover so that, in the simplest case, only one mains supply needs to be connected.

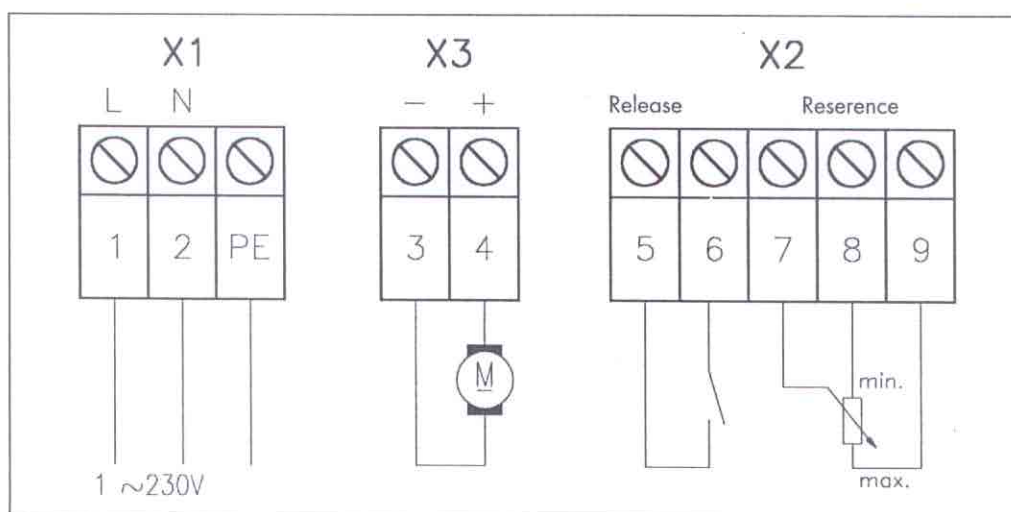
Acceleration is always in accordance with a linear ramp. When the mains voltage is switched off a protection time of 3 seconds must be observed before switching on again.

Technical data

Supply voltage	230 V \pm 10 %
Supply frequency	50/60 Hz
Output voltage	0 .. 180 V DC
Max. output current	3 A
Adjustment range of maximum voltage	0... 180 V
Speed adjustment range	1:20
Speed accuracy	\pm 5 % of nominal value
Setpoint input	5... 15 V or Poti 100 k Ω
ON delay	approx. 1 s
Acceleration time	approx. 1 s on nominal value
Temperature range	- 5 .. + 80° C
Protection class	same as that of the motor, max. IP44

Connection

The mains voltage is connected at terminals X1/1 (L), X1/2 (N) and X1/3 (PE) and the motor is connected at terminals X3/3 (-) and X3/4 (+).



Circuit diagram

If the release contact is used or if the setpoint potentiometer is fitted outside the terminal box, note the following:

The release and setpoint inputs conduct mains potential! The cables must be shielded and the shield must have large-area earthing on the motor with, for example, a metallic cable inlet with shield contacting. If an external setpoint voltage of 5 ... 15 V is used instead of the potentiometer (5 V at terminal 8, setpoint at terminal 7), the release input is ineffective.

Compliance with the EMC Directive is no longer guaranteed with the external assembly of the setpoint potentiometer.

Adjustment

P 1 current limiting The current limiting is set to 3 A at the works. This factory setting may only be changed after consultation with the manufacturer.

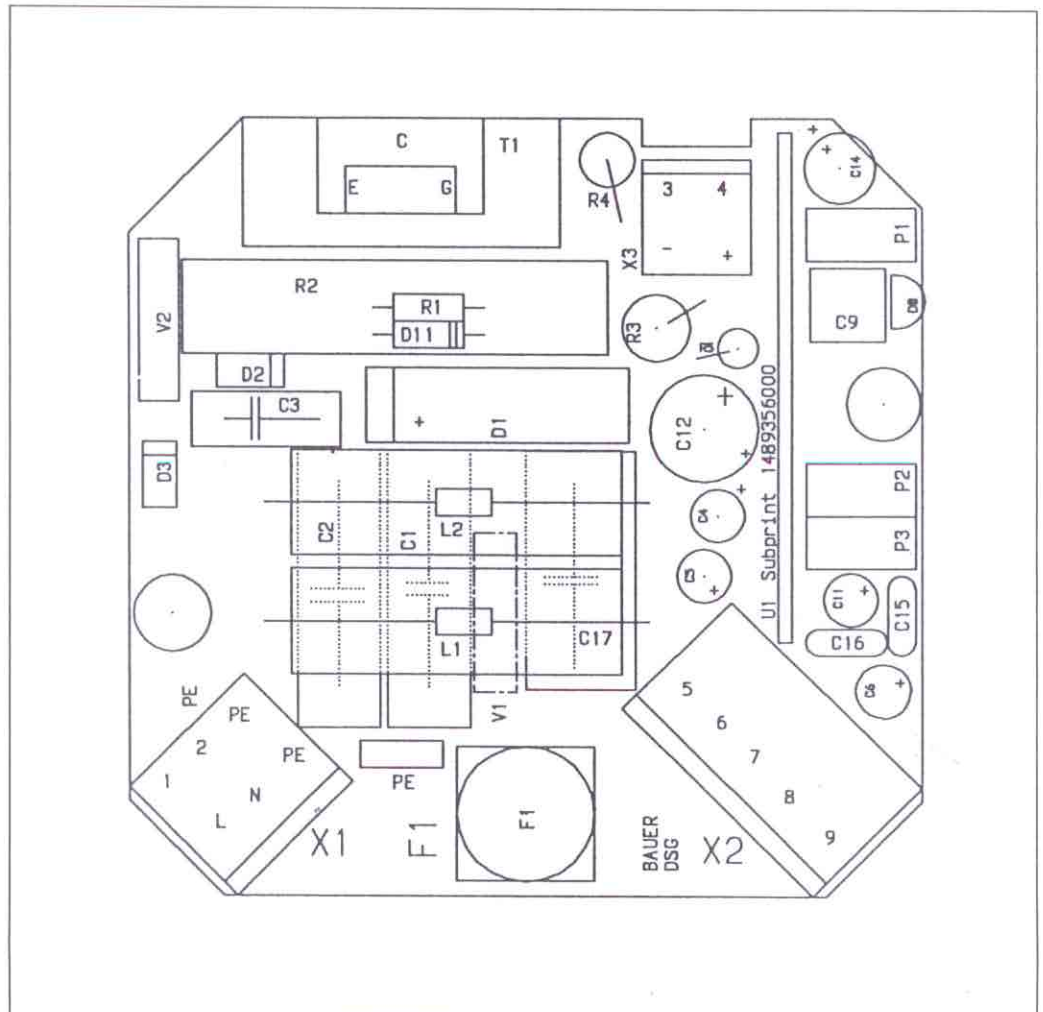
P 2 I*R compensation The I*R compensation is set at the works for the most powerful motor in question, the NUP 532-210. The compensation effect for smaller motors can be increased by turning the adjustment screw clockwise. Overcompensation causes jerky running.

P 3 maximum output voltage With the factory setting 180 V (idling) output voltage is reached for a maximum setpoint value. Turning P 3 anticlockwise allows any desired armature voltage between 0 V (standstill) and 180 V (nominal speed) to be allocated to the maximum setpoint.

Setting higher values can cause jerky running.

Acceleration time The acceleration time can be modified within certain limits by changing the capacitor C 14 following consultation with the manufacturer.

Component mounting diagram



Safety and application notes for drive power converter

(in accordance with: Low-Voltage Directive 73/23/EEC)

1. General
There is the risk of serious personal injury and damage to property in the event of unauthorised removal of the necessary cover, incorrect use, incorrect installation or operation.
All work connected with transport, installation and commissioning as well as maintenance must be carried out by qualified specialist personnel (follow IEC 364 or CENELEC HD 384 or DIN VDE 0100 and IEC 664 or DIN VDE 0110 and national accident prevention regulations). Within the sense of these basic safety notes qualified specialist personnel are persons familiar with the installation, assembly, commissioning and operation of the product and who have the qualifications for the activity they are carrying out.
2. Use in accordance with the regulations
If drive power converters are fitted in machinery they must not be commissioned (i.e. assumption of operation in accordance with the regulations) until it has been established that the machinery complies with the provisions of the EC Directive 89/392/EEC (Machinery Directive); EN 60204 must be followed.
Commissioning (i.e. assumption of operation in accordance with the regulations) is only permitted if the EMC Directive (89/336/EEC) is complied with.
The drive power converters satisfy the requirements of the Low-Voltage Directive 73/23/EEC. The harmonised standards in the series prEN 50178/DIN VDE 0160 in conjunction with EN 60439-1/VDE 0660 Part 500 and EN 60146/VDE 0558 apply to the drive power converters.
3. Transport, storage
The notes on transport, storage and correct handling must be followed. Climatic conditions must be adhered to in accordance with prEN 50178.
4. Installation
The drive power converters must be protected against unacceptable loading. When being transported and handled in particular no components must be bent and/or insulation distances changed. Contact with electronic components and contacts must be avoided.
Drive power converters contain electrostatic sensitive components which can easily be damaged through incorrect handling. Electronic components must not suffer physical damage or destruction (health risk under certain circumstances!).
5. Electrical connection
The current national accident prevention regulations (e.g. VBG 4) must be observed when working on live drive power converters.
Electrical installation must be carried out in accordance with the relevant regulations (e.g. conductor cross-sections, fuses, safety earth conductor interfacing). More comprehensive notes are contained in the documentation.

6. Operation Installations fitted in the power drive converters must be equipped where appropriate with additional monitoring and protective devices in accordance with the relevant safety regulations, e.g. Industrial Work Materials Law, accident prevention regulations, etc.
All covers must be kept closed during operation.
7. Servicing and maintenance The manufacturer's documentation must be observed.



Electromagnetic compatibility

- Connection The mains voltage is connected at terminals X1/1 (L1), X1/2 (N). Only a non-detachable connection is permissible as the leakage current is greater than 3.5 mA.
The safety earth conductor must be connected at X1/3 (PE).
Setpoint conductors must not be brought out of the terminal box.
- EC Directives Power converters used in conjunction with Bauer d.c. motors satisfy the provisions of the EC Directive 89/36/EEC (EMC Directive) and 73/23/EEC (Low-Voltage Directive).
The radio interference suppression standards DIN EN 50081 – Part 2 (industrial sector) and DIN EN 55011 (Class A) are satisfied without supplementary filter.
When the drive is used in the residential, commercial or industrial sectors as well as in small-scale operations in accordance with DIN EN 50081 Part 1 and DIN EN 55011 (Class B) an additional mains filter is required.

