

R-E-1.5...14G, RUE-2...7.5G

Transformer based controllers for variable voltage 1 ~ motors

Operating Instructions



Keep for reference!

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1 General notes

Compliance with the following instructions is mandatory to ensure the functionality and safety of the product. If the following instructions given especially but not limited for general safety, transport, storage, mounting, operating conditions, start-up, maintenance, repair, cleaning and disposal / recycling are not observed, the product may not operate safely and may cause a hazard to the life and limb of users and third parties. Deviations from the following requirements may therefore lead both to the loss of the statutory material defect liability rights and to the liability of the buyer for the product that has become unsafe due to the deviation from the specifications.

1.1 Structure of the operating instructions

Before installation and start-up, read this manual carefully to ensure correct use!

We emphasize that these operating instructions apply to specific units only, and are in no way valid for the complete system!

Use these operating instructions to work safely with and on the device. They contain safety instructions that must be complied with as well as information that is required for failure-free operation of the device.

Keep these operating instructions together with the device. It must be ensured that all persons that are to work on the device can refer to the operating instructions at any time.

1.2 Exclusion of liability

To allow for future developments, construction methods and technical data given are subject to alteration. We do not accept any liability for possible errors or omissions in the information contained in data, illustrations or drawings provided.

We accept no liability for damage caused by misuse, incorrect use, improper use or as a consequence of unauthorized repairs or modifications.

2 Safety instructions

- Installation, electrical connection and commissioning to be carried out by trained service personnel only. The specifications of the manufacturer or supplier, and instructions relating to the equipment, should be rigidly adhered to. Failure to comply with these conditions will invalidate the guarantee on our controllers and accessories!
- The 5 electrical safety rules must be observed!
- It is strictly forbidden for work to be carried out on any components while they are connected to live voltage. The open equipment is protected to IP00. It is possible to come into direct contact with dangerous voltages!
- The safe isolation from the supply must be checked using a **two-pole** voltage detector.
- Cover neighbouring electrical equipment during installation work.
- During operation, the device must be closed or installed in a control cabinet. Fuses may only be replaced by new ones and must not be repaired or bypassed. The data for the maximum line fuse are to be considered absolutely (see Technical data). Use only fuses specified in schematic diagrams.
- Never clean electrical equipment with water or similar liquids.

- The equipment is to be used solely for the purposes specified and confirmed in the order. Other uses which do not coincide with, or which exceed those specified will be deemed unauthorised unless contractually agreed. Damages resulting from such unauthorised uses will not be the liability of the manufacturer. The user will assume sole liability.
- During commissioning, unexpected and hazardous conditions can arise in the entire installation due to defective adjustments, defective components or incorrect electrical connections. Remove all persons and objects from the hazardous area.
- Any faults detected in the electric system/modules/operating equipment must be corrected immediately. If these faults are not corrected, the device/system is potentially very dangerous. The device/system must therefore not be operated when it is faulty.
- Pay attention to smooth, low vibration running of the motor/fan, the appropriate instructions in the drive documentation must be observed!



Attention!

Even after switching off, dangerous temperatures can still occur in and on the device.



Attention!

Automatically restart after a power failure or mains disconnection!



Information

A separate fault and performance monitoring-system with an alarm signal function is necessary in order to prevent personal injuries and material damages during malfunctions and in case the device fails. Substitute operation must be taken into consideration!

2.1 Explanations of symbols

Safety instructions are highlighted with warning triangles and are depicted according to the degree of hazard as follows.

	<p>Attention! General hazardous area. Death or severe injury or significant property damage can occur if the corresponding precautions are not taken!</p>
	<p>Danger due to electric current Danger by dangerous, electric voltage! Death or severe injury can occur if the corresponding precautions are not taken!</p>

**Information**

Important additional information and advice for user.

2.2 Requirements placed on the personnel / due diligence

Persons entrusted with the planning, installation, commissioning and maintenance and servicing in connection with the frequency inverter must have the corresponding qualifications and skills for these jobs.

In addition, they must be knowledgeable about the safety regulations, EU/EC directives, rules for the prevention of accidents and the corresponding national as well as regional and in-house regulations. Personnel to be trained or instructed and apprentices are only permitted to work on the device under the supervision of an experienced person. This also applies to personnel undergoing general training. Comply with the legal minimum age.

3 Product overview

3.1 Function

- Transformer control unit for speed control of voltage-controlled 1 ~ fans.
- In the case of **R-E1.5...14G** types, steps are manually set via the integrated 5-step switch.
- In the case of **RUE2...7.5G** types, steps are manually set via both separate 5-step switches.
Switching between both settings is done via an external contact, e.g. from a time switch:
 - Terminals 3-4 bridged Operation with step from switches "A" (left)
 - Terminals 4-5 bridged Operation with step from switches "B" (right)
- Integrated status signal lamp.
- Additional voltage output 230 V (terminal L'/1) is activated, if fan runs at steps 1, 2, 3, 4 or 5. It could be used e. g. for a signal lamp or damper control (maximum load see connection diagram).

**Attention!**

Automatically restart after a power failure or mains disconnection!

3.2 Maintenance

The device must be checked for soiling and, if necessary, cleaned in periodic intervals.

3.3 Transport

- The device is packed ex factory to suit the transport method previously agreed.
- Always use the original packaging materials when transporting the device.
- Avoid shocks and impacts to the device during the transport.
- During manual handling the human lifting and carrying restrictions must be observed and adhered to.

3.4 Storage

- The device must be stored in its original packaging in a dry and weather-proof room.
- Avoid exposure to extreme heat and cold.
- Avoid over-long storage periods (we recommend a maximum of one year).

3.5 Disposal / recycling



Disposal must be carried out professionally and in an environmentally friendly way in accordance with the respective national legal stipulations.

- ▷ Separate the materials by type and in an environmentally friendly way.
- ▷ If necessary, commission a specialist company with the waste disposal.

4 Installation

4.1 General notes



Attention!

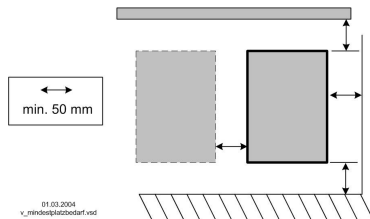
Mounting, electrical connection, and start-up operation may only be carried out by an electrical specialist in accordance with electrotechnical regulations (e.g. EN 50110, EN 60204, IEC 364)!

- The 5 electrical safety rules must be observed!
- Cover neighbouring electrical equipment during installation work.
- Before installation remove the device from the packing and check for any possible shipping damage! Start-up is not allowed in the case of transport damage!
- At a weight greater than 25 kg for men / 10 kg for women, the device should be lifted out by two persons (according to REFA). The values may differ from country to country.
- Wear safety shoes and gloves for handling!
- Assemble the device on a clean and stable base. Do not distort during assembly! Use the appropriate mounting devices for proper installation of the unit!
- Do not mount equipment on vibrating base!
- Do not allow drilling chips, screws and other foreign bodies to reach the device interior!

- The device should be installed in a location where it will not be disturbed, but at the same time can be easily accessed!
- Depending on the housing model use supplied stoppers for cable inlets, cut off necessary cable inlets respectively to the cable diameter. Or alternative use cable inlet for cable glands. Any cable ducts openings not used must be sealed!
- The required protective earth connection is established using screws between the housing parts in metal terminal space covers and housing casings. Commissioning is only permissible after these screws have been properly attached!
- Metal screwed-connections are not permitted in plastic housing parts because there is no potential equalization.
- Care must be taken to avoid direct radiation from the sun!
- The device is designed for vertical installation (bottom cable inlet). A horizontal or reclined installation is only permissible after technical release of the manufacturer!
- Be sure to observe proper heat dissipation (see Technical data, heat dissipation).

4.2 Minimum space requirement

In order to ensure sufficient ventilation of the device, clearance on all sides of at least 50 mm has to be maintained to the housing walls, switch cabinet doors, wiring ducts, etc. The same clearance applies to the installation of several devices next to each other. When installing several devices on top of each other, the danger of reciprocal heating exists. This layout is only then permissible when the air suctioned from the upper unit does not become warmer than the permissible ambient temperature (see Technical data). I.e., a correspondingly larger clearance or thermal shielding is required.



4.3 Mains connection

The mains connection is made at the terminals: PE, L1, N. In this regard, it is essential to ensure that the mains voltage lies within the allowable tolerance specifications (see technical data and rating plate affixed to the side).

The mains voltage must comply with the EN 50160 quality characteristics and the defined standard voltages in IEC 60038!



Danger due to electric current

The integrated autotransformer is not short-circuit-proof; it is essential to note the size of the internal fuse and the maximum prefuse (see technical data)!

4.4 Motor connection

The motor leads are connected to the terminals: PE, U1, U2. Several fans can be connected to the controller - the maximum total current of all motors must not exceed the current rating for the controller.



Information

Motor thermostats cannot be connected to these controller. I.e. a separate motor protection is required. We cannot under any circumstances accept liability for damage to the motors which do not have the required motor protection. It is recommended that every fan is equipped with a separate motor protection unit e.g. type S-ET10!

5 Enclosure

5.1 Technical data

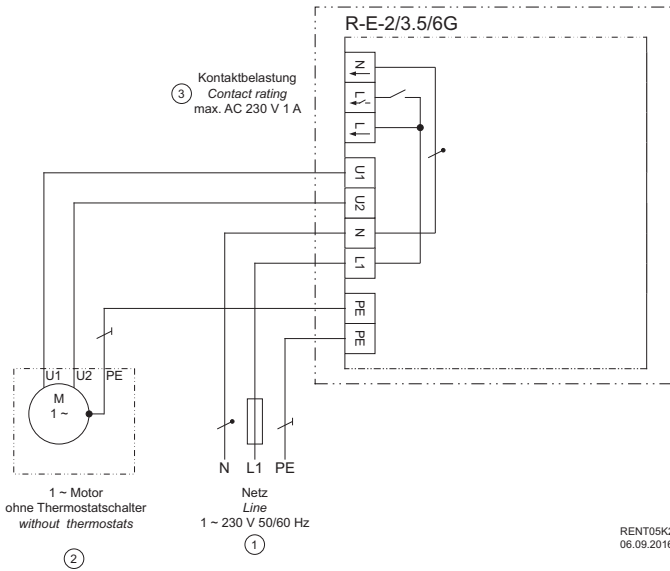
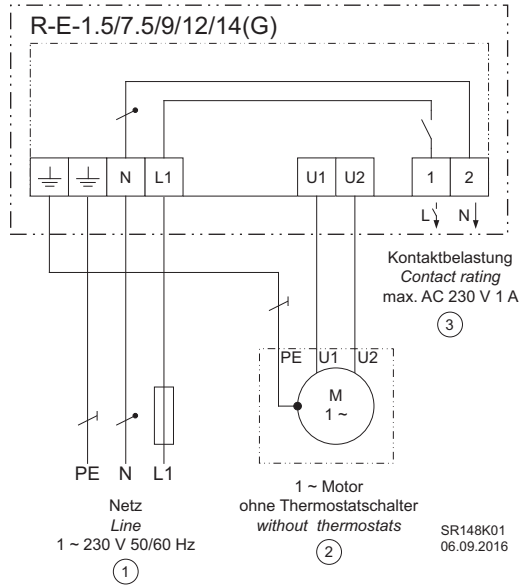
Line voltage: 1 ~ 230 V (-15 % / +10 %), 50/60 Hz

Max. permissible ambient temperature: 40 °C

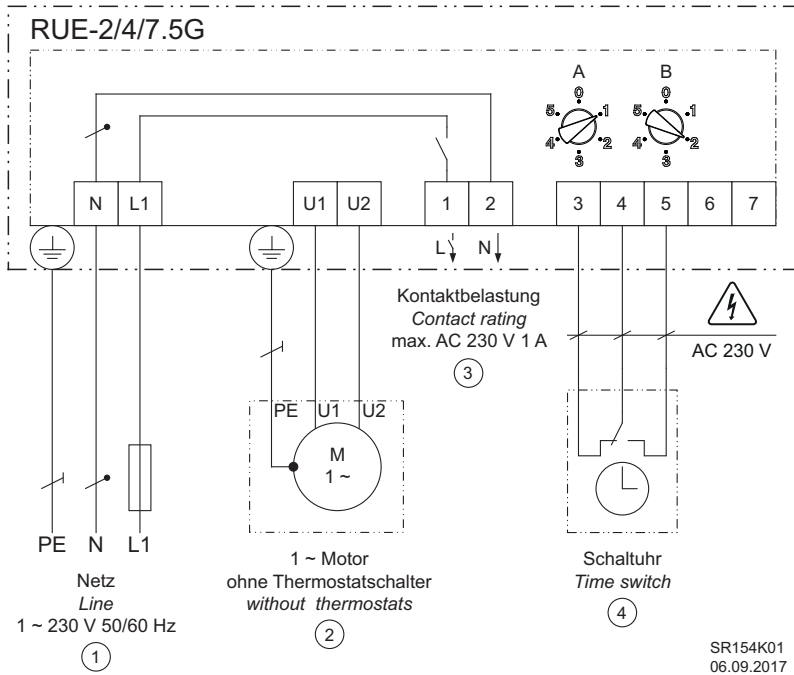
Output voltages adjustable via 5-stage switch: 65 V - 110 V - 135 V - 170 V - 230 V

Type	Part-No.	Rated current [A]	Max. line fuse [A]	Internal fuse [A]	Max. heat dissipation approx. [W]	Weight [kg]	Housing protection
R-E-1.5G	302001	1.5	T 4	-	20	1,74	IP54
R-E-2G	302107	2.0	16	T 4	20	2.1	IP54
R-E-3.5G	302108	3.5	16	T 4	30	3.5	IP54
R-E-6G	302109	6.0	16	T 8	35	4.9	IP54
R-E-7.5G	302053	7.5	T 8	-	40	6.0	IP54
R-E-9G	302055	9.0	T 16	-	50	10.5	IP54
R-E-12	302056	12.0	T 20	-	80	9.1	IP21
R-E-14G	302057	14.0	T 20	-	105	10.8	IP54
RUE-2G	302063	2.0	T 4	-	25	3.55	IP54
RUE-4G	302064	4.0	T 6	-	35	4.8	IP54
RUE-7.5G	302065	7.5	T 8	-	45	6.3	IP54

5.2 Connection diagram



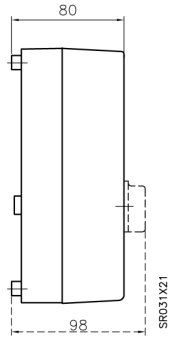
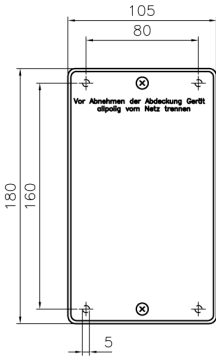
- 1 Line 1 ~ 230 V, 50/60 Hz
- 2 1 ~ motor without thermostats
- 3 Contact rating 230 V AC max. 1 A



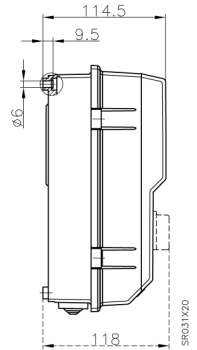
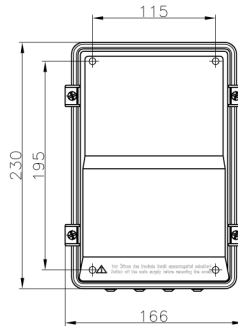
- 1 Line 1 ~ 230 V, 50/60 Hz
- 2 1 ~ motor without thermostats
- 3 Contact rating 230 V AC max. 1 A
- 4 Time switch

5.3 Dimensions [mm]

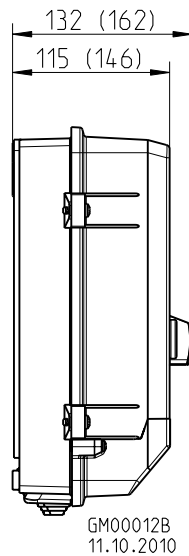
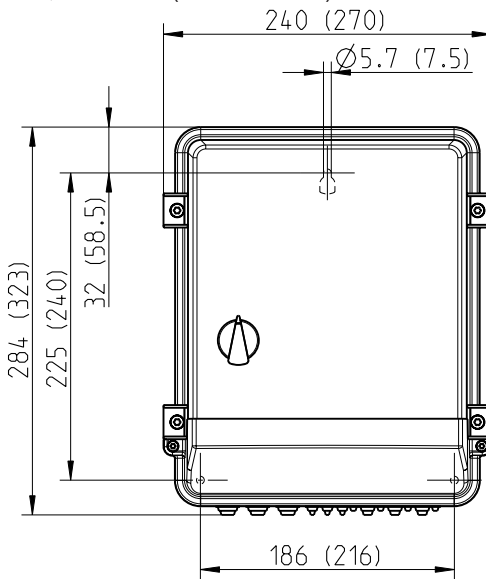
R-E-1.5G



R-E-2/3.5/6G



RUE-2/4/7.5G, R-E-7.5G (R-E-9/12/14G)



5.4 Manufacturer reference

Our products are manufactured in accordance with the relevant international regulations. If you have any questions concerning the use of our products or plan special uses, please contact:

ZIEHL-ABEGG SE
Heinz-Ziehl-Straße
74653 Künzelsau
Telephone: +49 (0) 7940 16-0
Telefax: +49 (0) 7940 16-504
info@ziehl-abegg.de
<http://www.ziehl-abegg.de>

5.5 Service information

If you have any technical questions while commissioning or regarding malfunctions, please contact our technical support for control systems - ventilation technology.

phone: +49 (0) 7940 16-800

Email: fan-controls-service@ziehl-abegg.de

Our worldwide contacts are available in our subsidiaries for deliveries outside of Germany, see www.ziehl-abegg.com.