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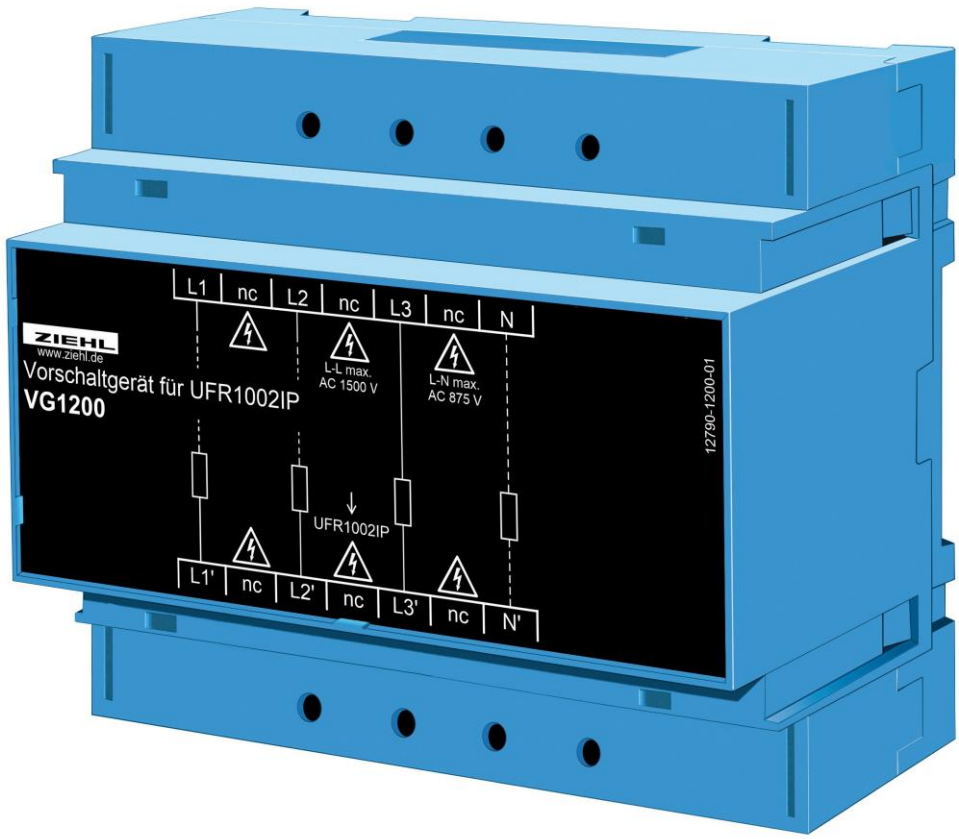
Operating Manual VG1200

updated: 2023-03-24 /Sc

For more information and help about this product please scan the QR-Code or choose the following link: VG1200.

Operating manual, Quick guide, Datasheet, Connection diagram, CAD Data, Firmwareupdates, FAQ, Videos about installation and settings, Certificates

- Coupling Device for Voltage Type VG1200
- for measuring of voltages up to 1200 V with NA-Box UFR1002IP



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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, commissioning 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.

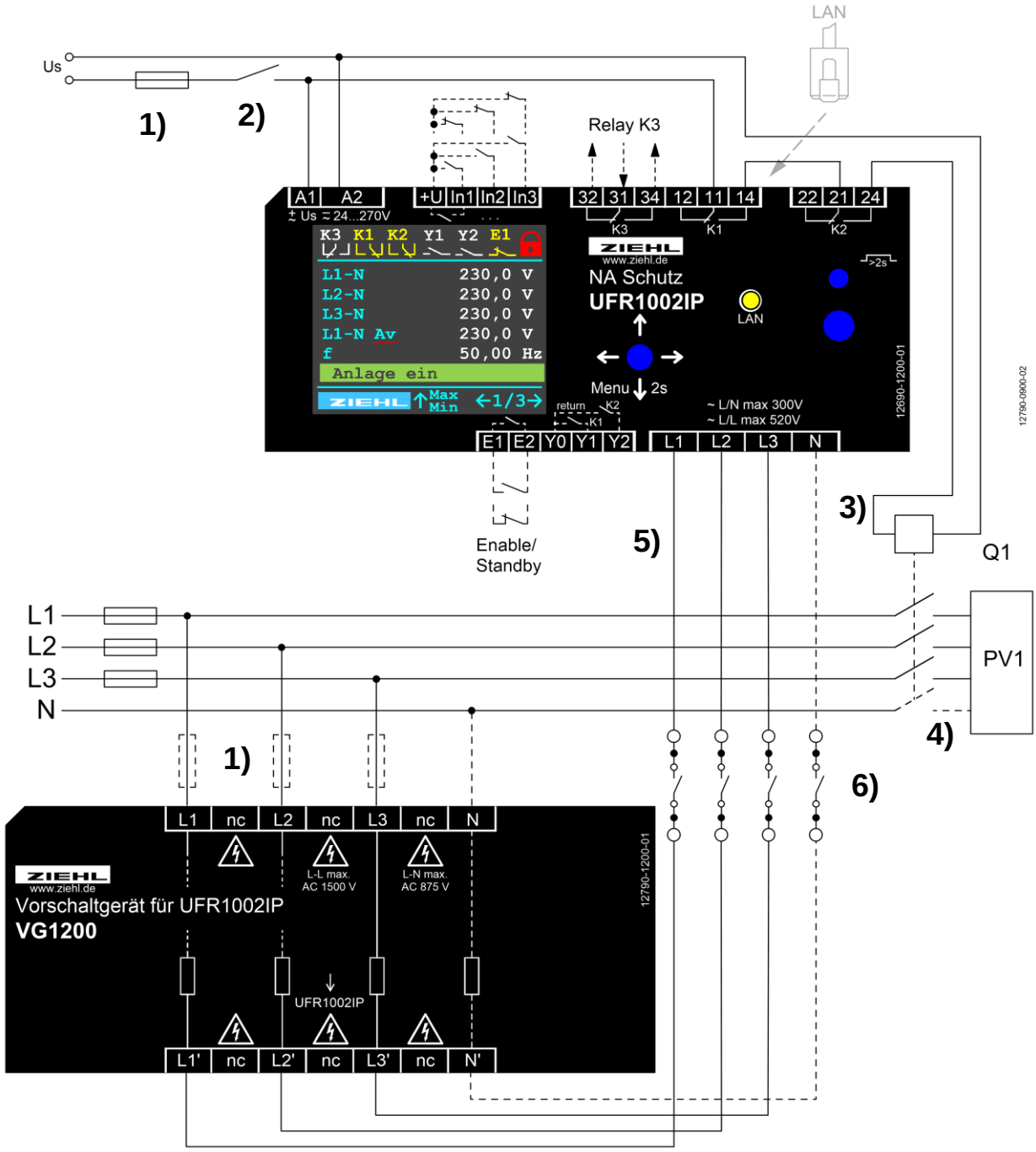
2 Application and short description

In order to achieve higher efficiencies and to reduce line losses, inverters with a higher output voltage than the usual 3AC 400 V are often used in large on-site generation systems.
So that the grid and system protection can monitor this high voltage, it must be reduced. This is usually done with voltage converters. With the VG1200 coupling device, an ohmic voltage divider is available that takes on this task. In conjunction with the VG1200 coupling device, the UFR1002IP can measure voltages of up to 1200 V. The display in the UFR1002IP is scalable. This means that the voltages at the input of the VG1200 are displayed and the limits for protection against over- and undervoltage are set accordingly. Both devices together meet the requirements of VDE-AR-N 4110 (feeding into the medium-voltage grid).

3 Overview of functions

- Measuring of voltage up to 1200 V
- Measuring tolerance ≤ 1,2% of nominal voltage (of UFR1002IP)
- No voltage converters required
- Display of the correct voltage on the UFR1002IP (scalable)
- No supply voltage required
- Housing V6, 105 mm wide

4 Connecting diagram



1) Fuses only when line protection necessary, e.g. 16 A
2) Switch off the plant with recording an alarm
3) N connected → only for programs with N
4) TT-system: switch all line conductors and N, TN-system: only switch line conductor
5) Connection cable UFR1002IP to VG1200: single cables, length max. 30 cm, with suitable insulation system for AC 300 V
6) Disconnect terminal block for protection test UFR1002IP without VG1200

5 Important Information

DANGER!
Hazardous voltage!
Will cause death or serious injury. Turn off and lock out all power supplying this device before working on this device.

To use the equipment flawless and safe, transport and store properly, install and start professionally and operate as directed.
Only let persons work with the equipment who are familiar with installation, start and use and who have appropriate qualification corresponding to their function. They must observe the contents of the instructions manual, the information which are written on the equipment and the relevant security instructions for the setting up and the use of electrical units.
The equipment is built according to DIN VDE/EN/IEC and checked and leave the plant according to security in perfect condition. If, in any case the information in the instructions manual is not sufficient, please contact our company or the responsible representative.
In order to maintain this status, you must observe the safety regulations entitled “caution” in this operating manual. Failures to follow the safety regulations can result in death, personal injury or property damage to the device itself and to other devices and facilities.
To maintain this condition, you must observe the safety instructions in this instruction manual titled “Important Information”. Failure to follow the safety instructions may result in death, personal injury, or property damage to the equipment itself and other equipment and facilities.
Instead of the industrial norms and regulations written in this instruction manual valid for Europe, you must observe out of their geographical scope the valid and relevant regulations of the corresponding country.

6 Installation

- mount on 35 mm mounting rail according to EN 60715
- connecting wires refer to the connection plan to prevent miss-operation and malfunction

7 Error search

The internal resistance of the unit can be measured with an ohmmeter when the **unit is removed and de-energised**.
Measurements at L1 against L1', L2 against L2', L3 against L3' and N against N'.
The resistance value should be 1.8 MΩ (± 2 kΩ) in each case.

8 Technical data

Rated voltage	
3AC-N	250 V … 690 V
3AC	440 V … 1200 V (max. 875 V ⏚)
Frequency range	45,00 … 65,00 Hz
Power consumption (own consumption)	< 1,5 VA
Measurement inputs / outputs	
Internal resistance Ri	1,8 MΩ / measuring channel L1-L1‘, L2-L2‘, L3-L3‘, N-N‘
Residual current (single error)	< 0,9 mA at 1500 V_{L-L}
Measuring range 3AC-N	0 V … 875 V
Measuring range 3AC	0 V … 1500 V (max. 875 V ⏚)
Adjustment range on UFR1002IP	3AC-N: 75 V … 875 V 3AC: 120 V … 1500 V
Measuring tolerance UFR1002IP + VG1200	≤ 1,2% of nominal voltage (of UFR1002IP)
Connection cable UFR1002IP to VG1200	single cables, length max. 30 cm (with suitable insulation system for AC 300 V)
Test conditions	EN 50178:1998
Rated impulse voltage	10,5 kV
Overvoltage category	III
Pollution degree	2
Rated insulation voltage Ui	3AC-N = 875 V, 3AC = 1500 V (max. 875 V ⏚)
Protection class	II
On-period	100 %
Basic insulation	L1, L2, L3, N
Reinforced Insulation	electronic – housing
EMC-tests (with associated UFR1002IP)	EN 60255-26
Emission	CISPR 11 class B
Immunity	EN 60255-26 industrial environment
Electrical fast transient/Burst	EN 60255-26 ±4 kV Pulse 5/50 ns, f = 5 kHz, t = 15 ms, T = 300 ms
SURGE immunity	EN 60255-26 ±2 kV
Electrostatic discharge	EN 60255-26 ± 6 kV contact discharge, ± 8 kV air discharge

Reliability – failure rate	EN 61709/ SN29500		
Ambient conditions	Local operation in dry rooms		
Operation time 24/7/365	8760 h/y		
Failure rate (FIT)	Tu = 40 °C	Tu = 60°C	Tu = 80°C
Tu = Tref (component not in operation)	82 FIT	84 FIT	90 FIT
	1392 years	1359 years	1268 years

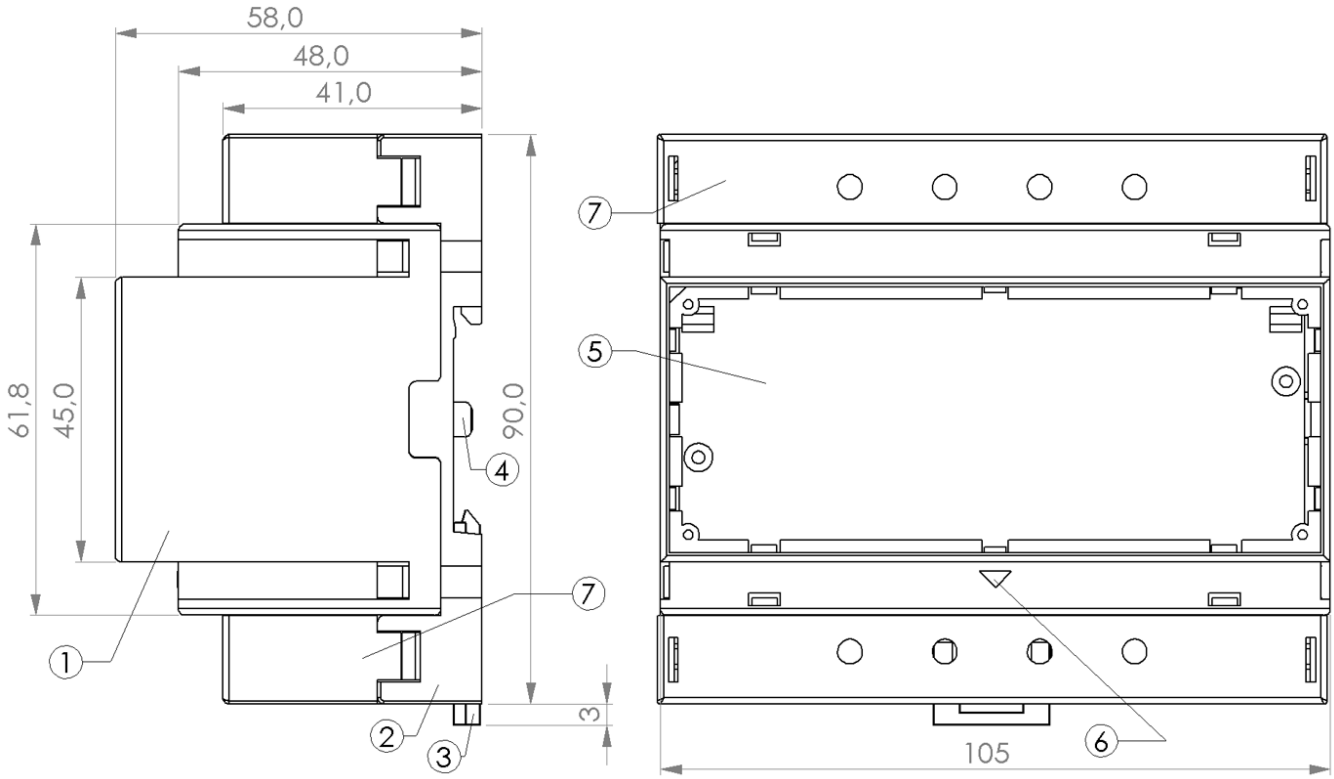
Installation conditions	
Climatic conditions	Type B, according to EN 50178
Permissible ambient temperature	-20 °C ... +55 °C
Permissible storage temperature	-20 °C …+70 °C
Permissible wiring temperature	-5 °C …+70 °C
Installation height	< 2000 m over N.N.
Climatic conditions	5-85% rel. F., no condensation
Vibration resistance	EN 50178, EN 60068-2-6

Housing	Type V6
Mounting depth	55 mm
Width	6 TE
Dimension (W x H x D)	105 x 90 x 58 mm
Protection class housing	IP30
Mounting	Snap mounting on 35 mm standard rail EN60715
Line connection solid wire	1 x 0,34 – 4,0 mm² / AWG 22 - 12
Stranded wire with insulated ferrules	1 x 0,34 – 2,5 mm² / AWG 22 - 12
Stripping length / torque	8 mm / 0,5 Nm
Protection class terminals	IP20
Weight with/without packing	ca. 160 g / 210 g

Subject to technical changes

9 Housing Type V6

Dimension in mm



1 Oberteil / cover
2 Unterteil / base
3 Riegel / bar for snap mounting
4 Plombenlasche / latch for sealing
5 Frontplatteneinsatz / front panel
6 Kennzeichen für unten / position downward
7 Klemmenabdeckung / terminal cover

10 Disposal

Disposal should be carried out properly and in an environmentally friendly manner in accordance with legal provisions.
ZIEHL is registered with the EAR Foundation under WEEE no .: DE 49 698 543.