

## 6 Characteristic Values

### 6.1 Load Data

|   |                        |
|---|------------------------|
| Line voltage                              | 3~ 230/400 V ±15%      |
| Frequency                                 | 50 ... 60 Hz           |
| Power consumption                         | Approx. 4 VA (no-load) |
| Test current, N-Test                      | 50 mA ±20% AC          |
| Test current, R <sub>E</sub> -Test        | 55 mA ±5% DC           |
| Switching threshold, R <sub>E</sub> -Test | 2.0 Ω ±10%             |
| Triggering threshold, PE-Test             | < 125 V                |
| Internal fuses                            | 4 ea. T160 mA, 250 V   |

### 6.2 Electrical Safety

|                      |  |
|----------------------|--|
| Safety class         | II per IEC 61010-1/EN 61010-1/VDE 0411-1 |
| Operating voltage    | 300 V                                    |
| Measuring category   | II                                       |
| Contamination degree | 2  |
| EMC                  | EN 50081-1/EN 61000-6-2                  |

### 6.3 Ambient Conditions

|                       |                             |
|-----------------------|-----------------------------|
| Storage temperature   | -46° C ... +71° C           |
| Operating Temperature | -40° C ... +50° C           |
| Elevation             | Max. 2000 m above sea level |

### 6.4 Mechanical Design

Protection IP 54, plug IP 44

Table Excerpt Regarding Significance of the IP Code

| IP XY<br>(1 <sup>st</sup> digit X) | Protection against foreign<br>object entry | IP XY<br>(2 <sup>nd</sup> digit Y) | Protection against the<br>penetration of water        |
|------------------------------------|--|------------------------------------|---|
| 2                                  | ≥ 12.5 mm dia.                             | 2                                  | vertically falling drops with<br>enclosure tilted 15° |
| 3                                  | ≥ 2.5 mm dia.                              | 3                                  | spraying water  |
| 4                                  | ≥ 1.0 mm dia.                              | 4                                  | splashing water                                       |
| 5                                  | dust protected                             | 5                                  | water jets  |
| 6                                  | dust-tight                                 | 6                                  | powerful water jets                                   |

|                        |                  |
|------------------------|------------------|
| Dimensions (L x W x H) | 160 x 80 x 65 mm |
| Weight                 | Approx. 750 g    |

Edited in Germany • Subject to change without notice • A pdf version is available on the internet.

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# CEE-CHECK 32/400

Test Instrument for Power Installations with 230/400 V, 50 to 60 Hz

3-349-124-03

2/11.04

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## 1 Applications

Power installations can be tested quickly and efficiently for correct function and electrical safety with the test instrument. The instrument is suitable for power circuits with type CEE 32A 6h 3-phase outlets carrying a voltage of 230/400 V, 50 to 60 Hz. If the power installation to which the power circuit belongs is equipped with a residual current protective device, it must also be tested for correct functioning with a test instrument in accordance with EN 61557-6/IEC 61557-6. At ambient temperatures of less than -10° C, a warm-up period of at least 5 minutes must be observed after connecting the instrument.

## 2 Safety Features and Precautions

The test instrument has been manufactured and tested in accordance with the following safety regulations:

IEC 61010-1/EN 61010-1/VDE 0411, part 1.  
If used for its intended purpose, safety of the user and of the device is assured.  
Read the operating instructions completely and carefully before using the device, and follow all instructions contained therein.

The test instrument may not be used:

- With open housing
- If it demonstrates visible damage
- With ruptured or damaged plug, or with torn or damaged power cable
- If it no longer functions flawlessly (can be recognized by implausible lamp functions)

## 2.1 Meanings of Symbols on the Instrument



Attention: observe documentation!

**Cat. II** Measuring category II device

**230/400 V** Rated voltage



Safety class II device  
(total insulation)



Indication of EC conformity

**IP 54** Protection class: dust and splash protected

**L1, L2, L3** Phase conductors of the 3-phase system

**N** Neutral conductor of the 3-phase system

**PE** Protective conductor

## 3 Connecting the Test Instrument

The instrument does not require any auxiliary voltage (battery): it takes all required energy from the power circuit under test. The power installation to which this circuit belongs must therefore be placed into operation in order to perform testing. Insert the test instrument's CEE plug into an appropriate outlet at the power installation.



### Note!

The test instrument is only suitable for use with type CEE 32A, 6 h 230/400 V outlets. If required, a suitable adapter can be used for other types of CEE 3-phase outlets. Testing at so-called PERILEX outlets is not possible.



### Warning!

The specified test sequence must be strictly adhered to! If any of the tests are not passed, the error must first be eliminated and testing must then be restarted!

## 4 Testing the Power Installation

### 4.1 Phase and Phase Sequence Testing

After connecting the test instrument, the three lamps on the front panel labeled **L1**, **L2** and **L3** must all light in equally bright green. Each lamp indicates that the respective phase conductor is live. If one or more lamps do not light up, the respective phases have failed, or are not connected.

Correct phase sequence is indicated by the green **Rotation** lamp (with arrow pointing in the clockwise direction). If this lamp lights up, the direction of rotation is clockwise. If the red **Rotation** lamp light up, the direction of rotation is counterclockwise, which means that two of the phases have been reversed at the outlet. If neither of these lamps lights up, one or more phases are missing, or a phase conductor has been connected to two or more terminals at the 3-phase outlet. If neither of the **Rotation** lamps lights up and if lamps **L1**, **L2** and **L3** light up with differing degrees of brightness, one of the phase conductors is connected to the neutral conductor or the protective conductor.



### Warning!

The next step in the test sequence may only be executed if no errors have been detected during this step.

### 4.2 Neutral Conductor Testing

Press and hold the **N-Test** key for approximately 3 seconds in order to test the neutral conductor. If the neutral conductor is connected, the green **N-Test OK** lamp lights up. If the neutral conductor is not connected, the lamp does not light up. An upstream residual current protective device may be tripped in this case (see chapter 4.3). If the red **N-Test Temp.** lamp lights up, in particular after frequent use, this means that the instrument cannot be used at the moment due to overheating, and must be allowed to cool down for approximately 10 minutes. Repeat the test after the instrument has cooled down.



### Warning!

The next step in the test sequence may only be executed if no errors have been detected during this step.

### 4.3 Reversal of Neutral and Protective Conductors

The test instrument recognizes reversed neutral and protective conductors in power installations which are equipped with a residual current protective device with a maximum nominal residual current of 30 mA. The test current of approximately 50 mA used for testing the neutral conductor has been selected such that a residual current protective device of this type is reliably tripped if the neutral and protective conductors are reversed. In such a case, the RCCB is tripped when the **N-Test** key is pressed, and all of the instrument's lamps go out.

If the power installation is not equipped with a residual current protective device of  $I_{\Delta N} \leq 30$  mA, the green **N-Test o.k.** lamp lights up and it is not possible to determine whether or not the neutral and protective conductors are reversed. Reversal is not critical to safety.



### Note for electricians:

In an error-free, load-free power installation, both conductors demonstrate nearly equal potential. Only in the event of asymmetrical load would current return via the protective conductor instead of the neutral conductor. Earthing resistance would result in a voltage drop, by means of which reversal can be indirectly inferred.



### Warning!

The next step in the test sequence may only be executed if no errors have been detected during this step.

### 4.4 Testing the Protective Conductor for Absence of Voltage

Gently touch the **PE-Test** surface in order to test the protective conductor for absence of voltage. The red **PE-Test** lamp must not light up at all when the surface is touched – neither dimly nor brightly! If the red lamp lights up, either the outlet's protective conductor is not connected or it has been reversed with a phase conductor.



### Attention, life endangering!

If the protective conductor is not connected or has been reversed with a phase conductor, the outlet may not be used under any circumstances. **Life endangering!** Arrange to have the power installation removed from service immediately and repaired! Start testing over again after repairs have been completed.

### 4.5 Earthing Resistance Test

Earthing resistance testing may not be started until the test instrument has been connected to the 3-phase outlet for at least 15 minutes. Press and hold the key labeled **R<sub>E</sub>-Test** for approximately 3 seconds. The green **R<sub>E</sub>-Test < 2 Ω** lamp must light up. The red **R<sub>E</sub>-Test > 2 Ω** lamp must not light up while the key is pressed. If the red lamp lights up, the 2 Ω limit value has been exceeded and earthing for the power installation must be improved.

If neither of the lamps light up, an error has occurred.

If an RCCB has been tripped, an AC/DC RCCB may be involved. Testing may only be continued by a qualified electrician in this case.



### Note for electricians:

Earthing resistance must be tested with a direct current of approximately 55 mA. AC/DC RCCBs must be jumpered during earthing resistance testing, because they would otherwise be tripped. It must be assured that the jumper is removed after testing has been completed.

A pause with a duration of approximately 10 seconds must be observed before any further testing is executed.



### Warning!

If the protective conductor is not connected, the red **R<sub>E</sub>-Test > 2 Ω** lamp lights up continuously! If this is the case, the power installation must be immediately removed from service and repaired.

In the event of errors in the power installation, in particular an interrupted protective conductor, a waiting period of approximately 10 seconds must be observed after correct connection has been established, before the instrument is once again ready for operation. The red **R<sub>E</sub>-Test > 2 Ω** lamp may light up during this waiting period.

If this test is also passed successfully, the test instrument can be disconnected from the power system under test. Testing of the power circuit is now finished.

## 5 Cleaning and Maintenance

Use a dry or slightly dampened cloth to clean the housing. Avoid the use of cleansers, abrasives or solvents. No liquids may be allowed to penetrate into the housing or the CEE connector plug!

The instrument should be returned to the manufacturer once every two years for function and safety testing.