Kurzbedienungsanleitung
Short-form Operating Instructions

GOSSEN METRAWATT

PROFITEST INTRO

3-349-839-15
3/9.23

(D) Lesen Sie die ausführliche Bedienungsanleitung, verfügbar unter www.gossenmetrawatt.com.
Die Kurzbedienungsanleitung ersetzt nicht die ausführliche Bedienungsanleitung!

Download Center

(GB) Read the detailed operating instructions, available at www.gossenmetrawatt.com.
The short-form instructions are no substitute for the detailed instructions!

Download Center

GB

Safety Instructions

Observe this documentation, the operating instructions, and in particular all included safety information, in order to protect yourself and others from injury, and to prevent damage to the instrument.

These condensed operating instructions and the detailed operating instructions should be made available to all users.

General

- Tests/measurements may only be performed by a qualified electrician, or under the supervision and direction of a qualified electrician. The user must be instructed by a qualified electrician concerning performance and evaluation of the tests/measurements.
- Observe the five safety rules in accordance with DIN VDE 0105-100:2015-10, VDE 0105-100:2015-10, Operation of electrical installations – Part 100: General requirements (1. Shut down entirely. 2. Secure against restart. 3. Assure absence of voltage at all poles. 4. Ground and short circuit. 5. Cover neighboring live components, or make them inaccessible.).
- Observe and comply with all safety regulations which are applicable for your work environment.
- Wear suitable and appropriate personal protective equipment (PPE) whenever working with the instrument.
- The functioning of active medical devices (e.g. pacemakers, defibrillators) and passive medical devices may be affected by voltages, currents and electromagnetic fields generated by the tester and the health of their users may be impaired. Implement corresponding protective measures in consultation with the manufacturer of the medical device and your physician. If any potential risk cannot be ruled out, do not use the instrument.

Accessories

- Use only the specified accessories (included in the scope of delivery or listed as options) with the instrument.
- Carefully and completely read and adhere to the product documentation for optional accessories. Retain these documents for future reference.

Handling

- Use the instrument in undamaged condition only.
  Inspect the instrument before use. Pay particular attention to damage, interrupted insulation or kinked cables.
  Damaged components must be replaced immediately.
- Use the accessories and all cables in undamaged condition only.
  Inspect accessories and all cables before use. Pay particular attention to damage, interrupted insulation or kinked cables.
- If the instrument or its accessories don't function flawlessly, permanently remove the instrument/accessories from operation and secure them against inadvertent use.
- If the instrument or accessories are damaged during use, for example if they're dropped, permanently remove the instrument/accessories from operation and secure them against inadvertent use.
- If there are any signs of interior damage to the instrument or accessories (e.g. Loose parts in the housing), permanently remove the instrument/accessories from operation and secure them against inadvertent use.

- The instrument and the accessories may only be used for the tests/measurements described in the documentation for the instrument.
- Route cables in an orderly fashion, e.g. the power cable and cables of accessories. Loose, disorderly cables result in unnecessary danger of tripping and falling.
- The integrated voltage measuring function and mains check may not be used to test systems or system components for the absence of voltage.
  Testing for the absence of voltage is only permissible with a suitable voltage tester or voltage measuring system which fulfills the requirements specified in DIN EN 61243.

Operating Conditions

- Do not use the instrument and its accessories after long periods of storage under unfavorable conditions (e.g. humidity, dust or extreme temperature).
- Do not use the instrument and its accessories after extraordinary stressing due to transport.
- The instrument must not be exposed to direct sunlight.
- Only use the instrument and its accessories within the limits of the specified technical data and conditions (ambient conditions, IP protection code, measuring category etc.).
- Do not use the instrument in potentially explosive atmospheres.

Rechargeable or regular batteries

- Use batteries in undamaged condition only. Risk of explosion and fire in the case of damaged batteries!
  Inspect the batteries before use. Pay particular attention to leaky and damaged batteries.
- If you are using rechargeable or regular batteries, the instrument must only be used with inserted and properly closed battery compartment lid. Otherwise, dangerous voltages may occur at the contacts of the rechargeable or regular batteries.
- Do not use the instrument while the internal batteries are being charged.
- Charge rechargeable batteries in undamaged condition only. Risk of explosion and fire in the case of damaged rechargeable batteries!

Fuses

- The instrument may only be used as long as the fuses are in flawless condition. Defective fuses must be replaced. Fuses may only be replaced by our repair service department.
- Never bridge the fuses. Never put the fuses out of operation.

Measurement Cables and Establishing Contact

- Plugging in the measurement cables must not necessitate any undue force.
- Never touch conductive ends (for example of test probes).
- Fully unroll all measurement cables before starting a test/measurement. Never perform a test/measurement with the measurement cable rolled up.
- Avoid short circuits due to incorrectly connected measurement cables.
- Ensure that test probes, etc. make good contact.
- If possible, move or remove the connectors, test probes, alligator clips, or Kelvin probes only when testing/measurement has been completed.
  Unwanted sparking may otherwise occur due to test current.

Data Security

- Always create a backup copy of your measurement data.
- Observe and comply with the applicable national data protection regulations. Use the corresponding functions provided by the instrument such as access protection, as well as other appropriate measures.

Application

Please read this important information!

Intended Use / Use for Intended Purpose

The measurement and test instrument PROFITEST INTRO (M520T) is used for testing the effectiveness of protective measures at stationary electrical installations after completion, repair or expansion, and for periodic testing (DGUV regulation 3) according to IEC 60364-6 / DIN VDE 0100-600, ÖVE-EN 1, SEV 1000, NIV/NIN, and other country-specific standards as well as defined in the individual sections of DIN EN 61557 (VDE 0413).

The range of applications of the measurement/test instrument covers all alternating and three-phase current systems with nominal voltages of 230 V / 400 V (300 V / 500 V) and nominal frequencies of 162/3 / 50 / 60 / 200 / 400 Hz. Measuring categories: 300 V CAT IV and 600V CAT III.

A system structure is set up in the measurement/test instrument and measured values are assigned to the objects and stored. With the associated PC software ETC tests and measured values can be archived and test and measurement protocols can be created for documentation and printing (e.g. all of the values required for ZVEH approval reports).

Safety of the operator, as well as that of the measurement/test instrument, is only assured when it's used for its intended purpose.

Use for Other than Intended Purpose

Using the measurement/test instrument for any purposes other than those described in these condensed operating instructions, or in the measurement/test instrument's operating instructions, is contrary to use for intended purpose.

Liability and Guarantee

Gossen Metrawatt GmbH assumes no liability for property damage, personal injury or consequential damage resulting from improper or incorrect use of the product, in particular due to failure to observe the product documentation. Furthermore, all guarantee claims are rendered null and void in such cases.

Nor does Gossen Metrawatt GmbH accept any liability for data loss.

Opening the Instrument / Repairs

In order to ensure flawless, safe operation and to assure that the guarantee isn't rendered null and void, the measurement/test instrument may only be opened by authorized, trained personnel. Even original replacement parts may only be installed by authorized, trained personnel.

Unauthorized modification of the measurement/test instrument is prohibited.

If it can be ascertained that the measurement/test instrument has been opened by unauthorized personnel, no guarantee claims can be honored by the manufacturer with regard to personal safety, measuring accuracy, compliance with applicable safety measures or any consequential damages.

If the guarantee seal is damaged or removed, all guarantee claims are rendered null and void.

Scope of Delivery

1 measurement/test instrument
1 Shoulder strap
1 Battery pack (8 batteries + holder) OR 1 Compact battery pack (Z502H)
1 KS-PROFiTEST INTRO (Z503L)
1 Factory calibration certificate
1 Condensed operating instructions
Comprehensive operating instructions available on the Internet for download from www.gossenmetrawatt.com

Optional Accessories

Some measurements necessitate optional accessories: Please refer to the associated data sheet and operating instructions for more information.

Symbols on the Instrument


Warning concerning a point of danger
(attention, observe documentation!)


Protection category II device


Charging socket for extra-low direct voltage (Z502R for charger)


The instrument and its batteries may not be disposed of with household trash. Further information is included in the operating instructions.


Indicates EC conformity


If the guarantee seal is damaged or removed, all guarantee claims are rendered null and void.

Technical Data (excerpt)

The complete technical data and characteristic values (display ranges, resolution, uncertainties etc.) can be found in the complete operating instructions.

Ambient Conditions

Accuracy	0 … + 40 °C
Operation	−5 … + 50 °C
Storage	−20 … + 60 °C (without batteries/rechargeable NiMH batteries)
Relative humidity	max. 75% (max. 85% during storage/transport) No condensation allowed
Elevation	Max. 2000 m
Calibration interval	1 year (recommended)

Nominal Ranges of Use

Voltage U_N	120 V	(108 … 132 V)
	230 V	(196 … 253 V)
	400 V	(340 … 440 V)
Frequency f_N	16.7 Hz	(15,4 … 18 Hz)
	50 Hz	(49,5 … 50.5 Hz)
	60 Hz	(59,4 … 60.6 Hz)
	200 Hz	(190 … 210 Hz)
	400 Hz	(380 … 420 Hz)
Overall voltage range U_Y	65 … 550 V	
Overall frequency range	15.4 … 420 Hz	
Line voltage	Sinusoidal	
Temperature range	0 °C … + 40 °C	
Supply voltage	8 … 12 V	
Line impedance angle	per cos φ = 1 … 0.95	

Overload capacity

UL-PE, UL-N	600 V continuous
RCD, RE	440 V continuous
ZL-PE, ZL-N	550 V (Limits the number of measurements and pause duration. If overload occurs, the instrument is switched off by means of a thermostatic switch.)
RLO	Electronic protection prevents switching on if interference voltage is present.
Protection with 2 fine-wire fuses	FF 3.15 A 10 s, Fuses blow at > 5 A

Electrical Safety

Protection class	II per IEC 61010-1/EN 61010-1/ VDE 0411-1
Nominal voltage	230/400 V (300/500 V)
Test voltage	3.7 kV, 50 Hz
Measuring category	CAT III 600 V or CAT IV 300 V
Pollution degree	2
Fuses L and N terminals	1 cartridge fuse-link ea. FF 3.15A / 600V 6.3 mm x 32 mm

Mechanical Design

Display	Multiple display with dot matrix, 128 × 128 pixels backlit (transflective), Dimensions: 65 mm × 65 mm
Dimensions	W × L × H = 225 mm × 130 mm × 140 mm
Weight	approx. 1.5 kg with batteries
Protection	Housing: IP 52, connections: IP 40

Data Interfaces

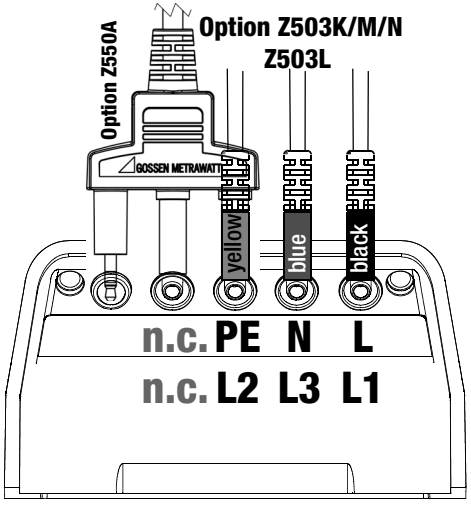
Type	USB slave for PC connection
Type	RS232 for barcode and RFID readers

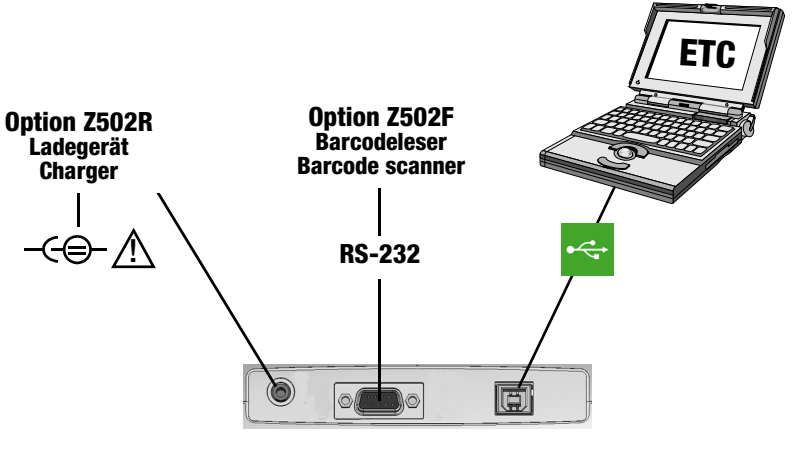
Scope of Functions

Testing of residual current devices (RCDs)
U_B measurement without tripping the RCD
Tripping time measurement
Measurement of tripping current I_F
Selective, SRCDs, PRCDs, type G/R
AC/DC sensitive RCDs, types B and B+, EV, MI
Testing for N-PE reversal
Measurement of loop impedance Z_{L-PE} / Z_{L-N}
Fuse table for systems without RCDs
Without tripping the RCD, fuse table
With 15 mA test current[1], without tripping the RCD
Earth resistance R_E (mains operation)
Measurement of equipotential bonding R_{LO} Automatic polarity reversal
Insulation resistance R_{INS} Variable or rising test voltage (ramp)
Voltage U_{L-N} / U_{L-PE} / U_{N-PE} / f
Special Measurements
Phase sequence
Earth leakage resistance $R_{E(INS)}$
Voltage drop (ΔU)
Features
Selectable user interface language (D, GB, I, F, E, P, NL, S, N, FIN, CZ, PL)
Memory (database for up to 50,000 objects)
RS-232 port for RFID/barcode reader
USB port for data transmission
ETC user software for PC
Measuring category: CAT III 600 V / CAT IV 300 V
Factory calibration certificate

[1]The so-called live measurement is only advisable if there is no bias current within the system. Only suitable for motor protection switches with small nominal current values.

(D) Anschlüsse / (GB) Sockets





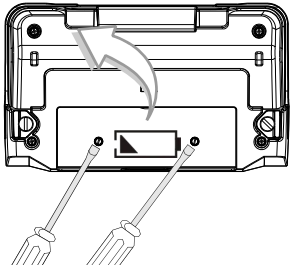
(D) Inbetriebnahme

Achtung! Entfernen Sie die Schutzfolie an der Taste ON/START (Fingerkontakt). Nur so werden Berührspannungen sicher erkannt.

Je nach Lieferumfang setzen die das Batteriepack oder das vorgeladene Kompakt Akku-Pack (Z502H) ein:

1. (nur Batteriepack): Batterien in Halterung einsetzen. **Auf Polung achten!**
2. Schrauben des Akkufachdeckels (Geräterückseite) lösen.
3. Akkufachdeckel abnehmen.
4. Batteriepack bzw. Kompakt Akku-Pack einsetzen. **Auf Polung achten!**
5. Akkufachdeckel einsetzen.
6. Akkufachdeckel festschrauben.

Weitere Infos zur Stromversorgung siehe Bedienungsanleitung.



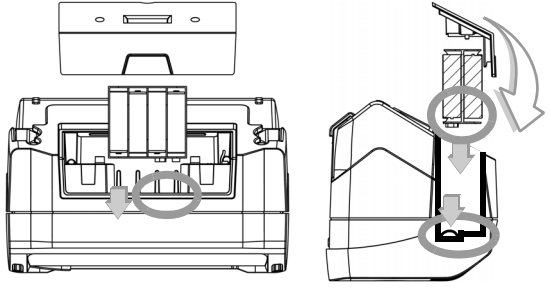
(GB) Initial Start-Up

Attention! Remove the protective film from the ON/START button (finger contacts). This is the only way to safely detect contact voltages.

Depending on the scope of delivery, you either insert the battery pack or the pre-charged compact rechargeable battery pack (Z502H):

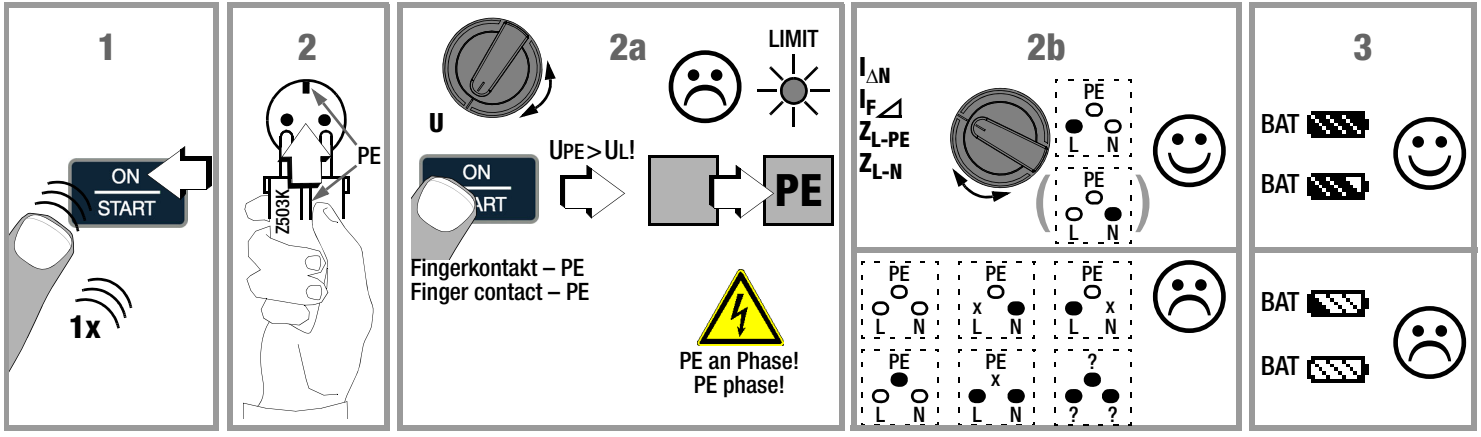
1. (only battery pack): Insert batteries into holders. **Observe correct polarity!**
2. Loosen the screws on the battery compartment cover (back of instrument).
3. Remove the battery compartment cover.
4. Insert the battery pack oder compact rechargeable battery pack. **Observe correct polarity!**
5. Replace the battery compartment cover.
6. Screw the battery compartment cover into place.

Further information on the power supply can be found in the operating instructions.



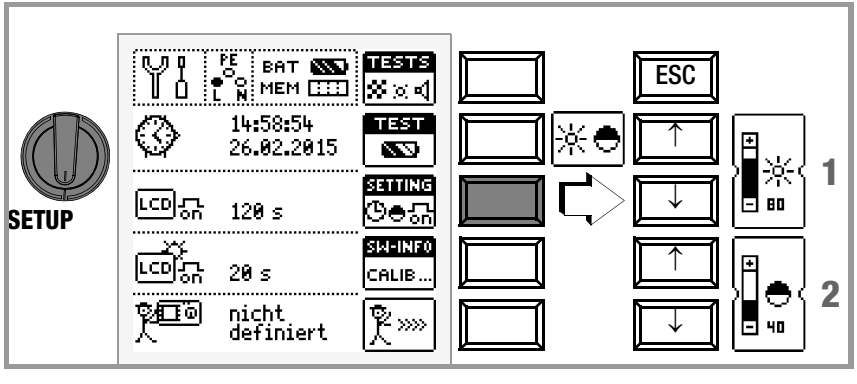
(D) **1 Einschalten 2 Anschluss 3 Akkutest**

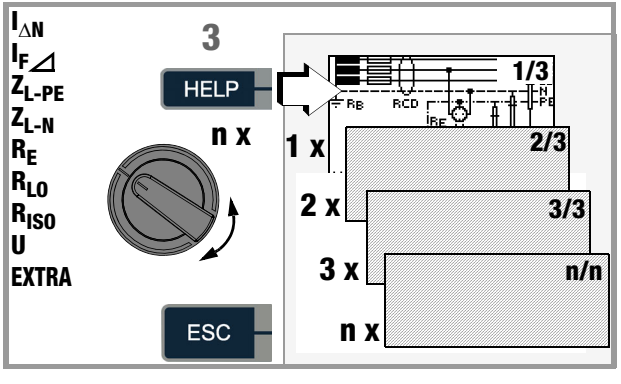
(GB) **1 Switching on 2 Connection 3 Rechargeable battery test**



(D) **1 Helligkeit 2 Kontrast 3 Hilfe aufrufen**

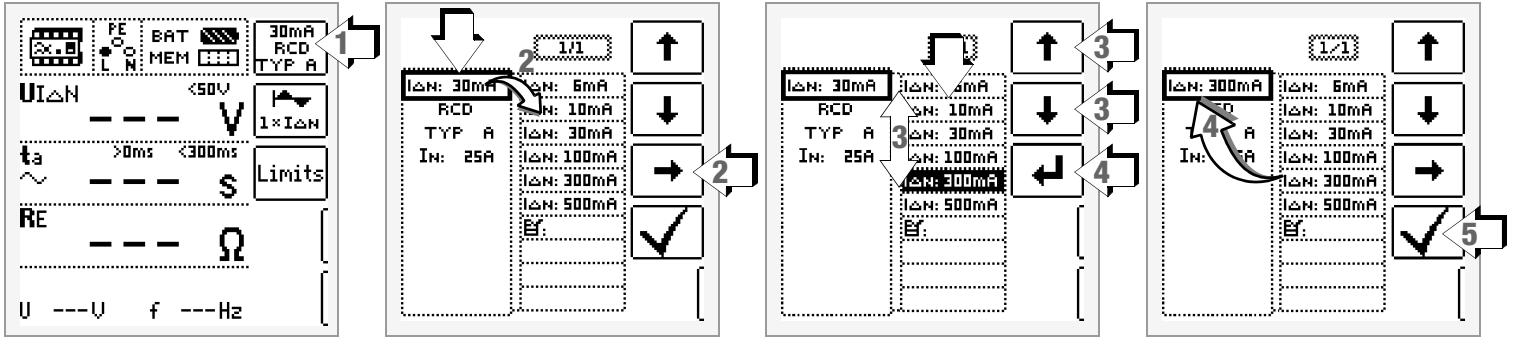
(GB) **1 Brightness 2 Contrast 3 Open help**





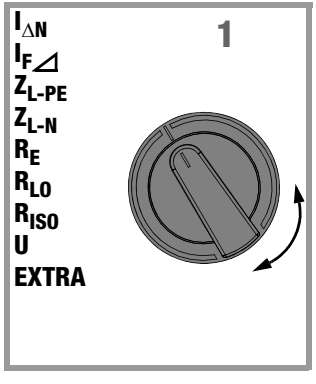
(D) Parameter: 1-3 auswählen 4 bestätigen 5 übernehmen

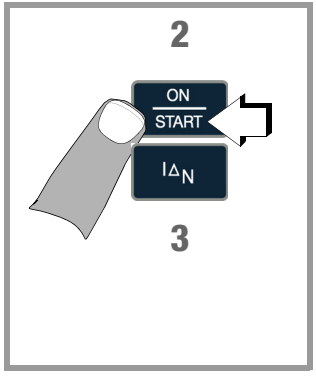
(GB) Parameter: 1-3 Select 4 Confirm 5 Take over

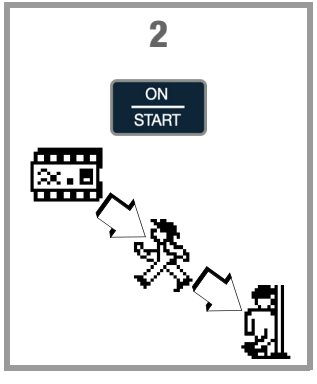


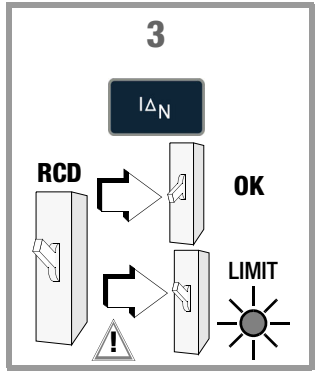
(D) Messung: 1 auswählen 2 starten 3 RCD auslösen

(GB) Measurement: 1 select 2 start 3 trip RCD



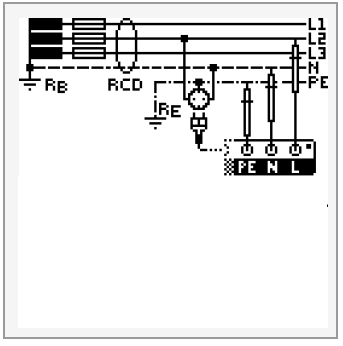






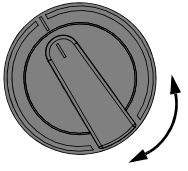
$I_{\Delta N}$

1



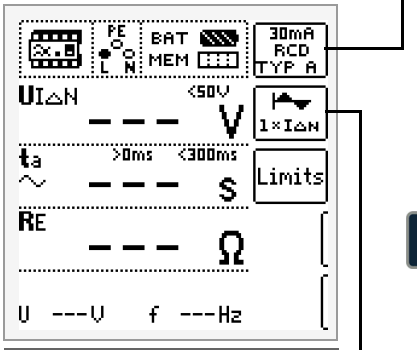
2

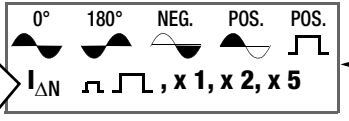
$I_{\Delta N}$



3

$I_{\Delta N}$ 6 … 500 mA, xxx mA
RCD SRCD, PRCD, …
Typ AC, A/F, B/B+, EV/MI; I_N 6…125

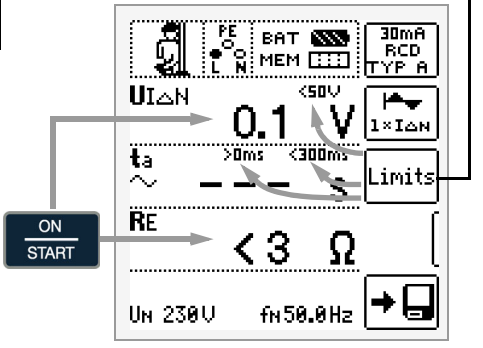




⎍⎍⎍: 50% $I_{\Delta N}$ (1s) → 1 x $I_{\Delta N}$
500 mA: 1 x $I_{\Delta N}$, 2 x $I_{\Delta N}$

4

UL < 25 V, 50 V, 65 V, xxx V
ta < 40 ms…1.00 s, xxx ms
ta > 0 ms…500 ms, xxx ms



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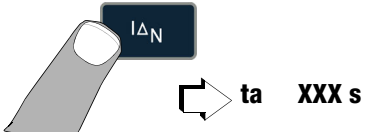
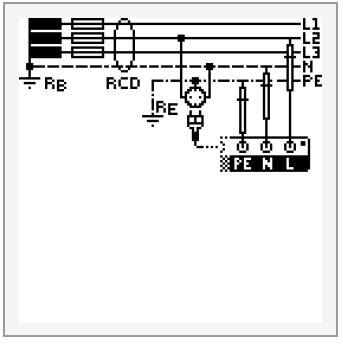


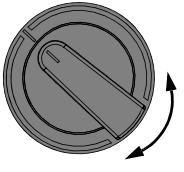
$I_{F\Delta}$

1

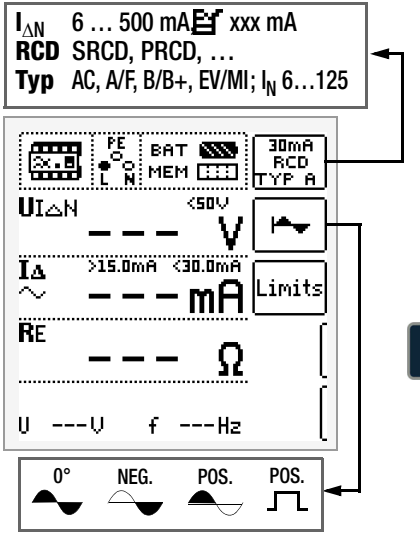


2

$I_{F\Delta}$



3



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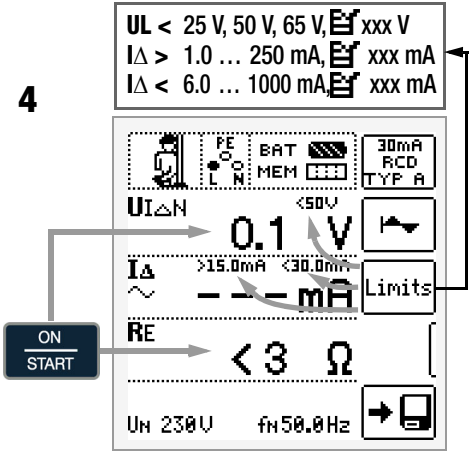

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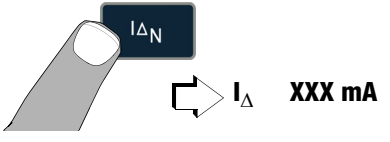
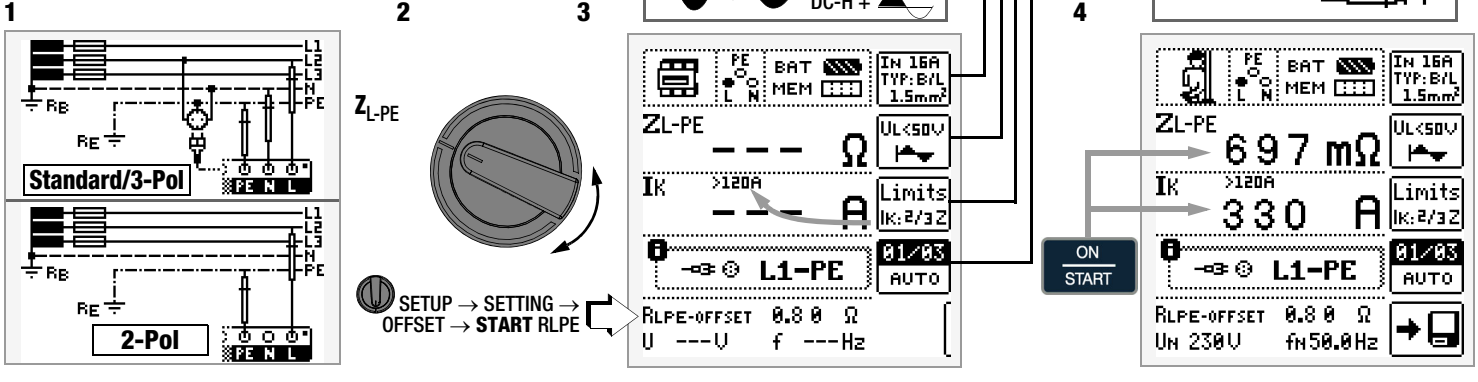
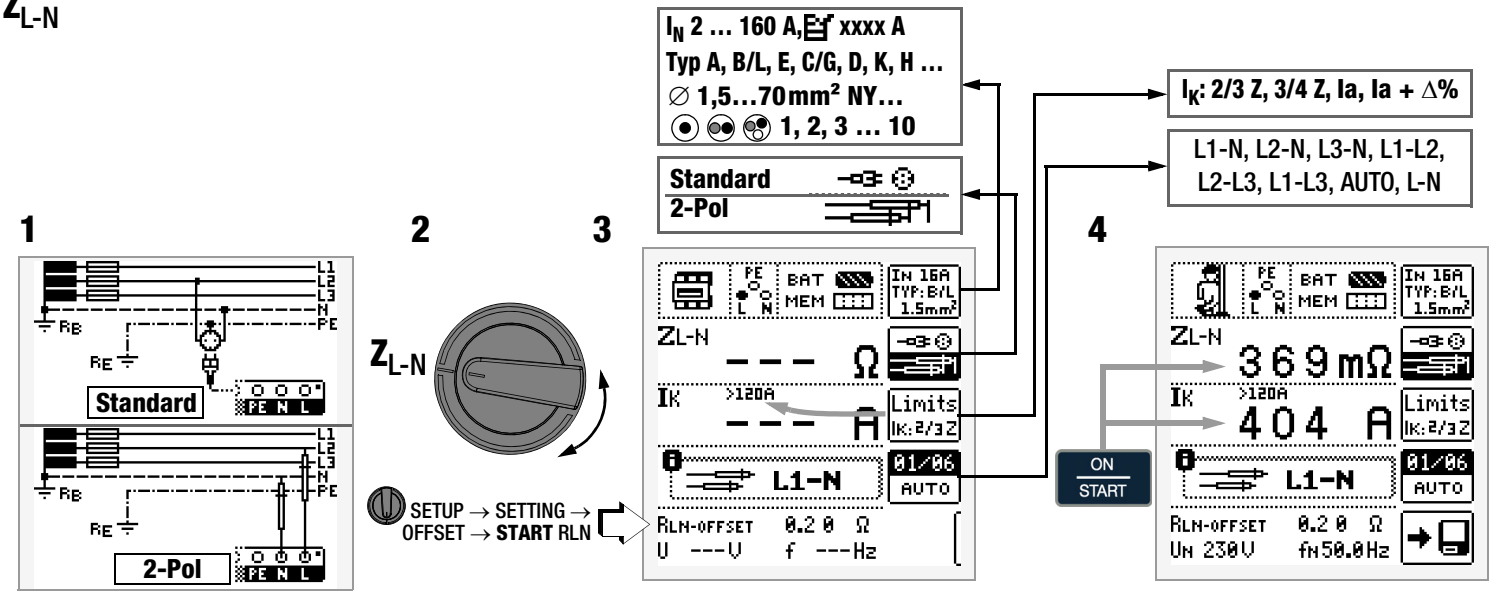


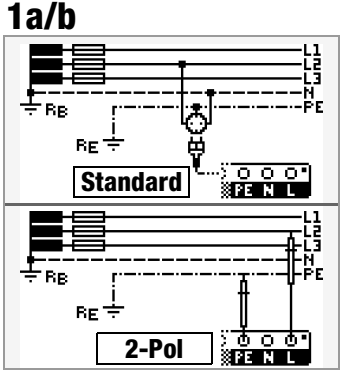
Z_{L-PE}

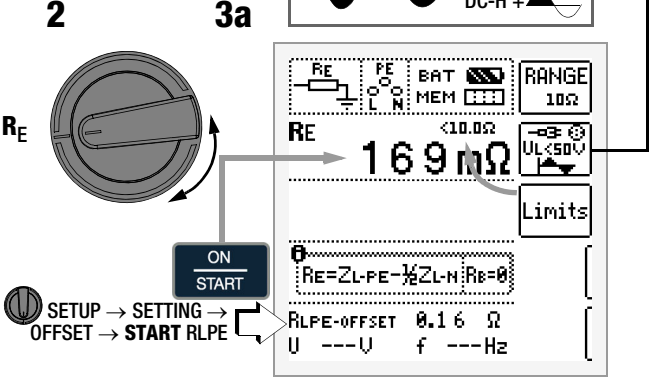

1
2
3
4
L1
L2
L3
N
PE
RB
RE
Standard/3-Pol
2-Pol
PE N L
ZL-PE
SETUP → SETTING →
OFFSET → START RLPE
IN 2 ... 160 A, xxxx A
Typ A, B/L, E, C/G, D, K, H ...
∅ 1,5-70 mm², NY...
1, 2, 3 ... 10
UL < 25, 50, 65 V, xx V
0°
15 mA
DC-L +
DC-H +
BAT
MEM
IN 16A
TYP:B/L
1.5mm²
UL<50V
Limits
IK:2/3Z
01/03
AUTO
L1-PE
RLPE-OFFSET 0.80 Ω
U ---V f ---Hz
IK: 2/3 Z, 3/4 Z, Ia, Ia + Δ%
L1-PE, L2-PE, L3-PE, AUTO
Standard
2-Pol
ON
START
697 mΩ
330 A
>120A
UN 230V fN 50.0Hz

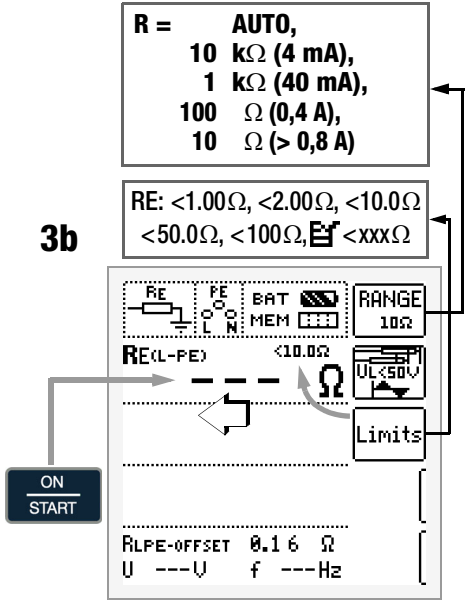
Z_{L-N}


1
2
3
4
I_N 2 … 160 A, xxxx A
Typ A, B/L, E, C/G, D, K, H …
∅ 1,5…70mm² NY…
1, 2, 3 … 10
Standard
2-Pol
I_K: 2/3 Z, 3/4 Z, Ia, Ia + Δ%
L1-N, L2-N, L3-N, L1-L2, L2-L3, L1-L3, AUTO, L-N
Z_{L-N}
RB
RE
L1
L2
L3
N
PE
Standard
2-Pol
PE N L
SETUP → SETTING →
OFFSET → START RLN
PE L N
BAT
MEM
IN 16A
TYP: B/L
1.5mm²
ZL-N
– – – Ω
IK
>120A
– – – A
Limits
IK: 2/3Z
L1-N
01/06
AUTO
RLN-OFFSET 0.2 0 Ω
U ---V f ---Hz
ON
START
369 mΩ
404 A
UN 230V fN 50.0Hz

R_E

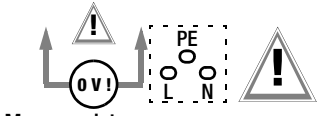

1a/b
L1
L2
L3
N
PE
RB
RE
Standard
PE N L
2-Pol


2
RE
ON
START
SETUP → SETTING →
OFFSET → START RLPE
3a
Standard
2-Pol
UL < 25, 50, 65 V, xx V
0°
15 mA
DC-L +
DC-H +
RE
PE
L N
BAT
MEM
RANGE
10Ω
<10.0Ω
169 mΩ
UL<50V
Limits
RE=ZL-PE-½ZL-N RB=0
RLPE-OFFSET 0.16 Ω
U ---V f ---Hz

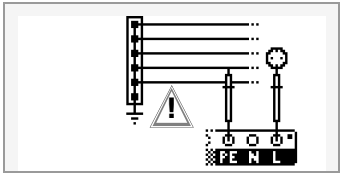

R = AUTO,
10 kΩ (4 mA),
1 kΩ (40 mA),
100 Ω (0,4 A),
10 Ω (> 0,8 A)
RE: <1.00Ω, <2.00Ω, <10.0Ω
<50.0Ω, <100Ω, <xxxΩ
3b
ON
START
RE
PE
L N
BAT
MEM
RANGE
10Ω
RE(L-PE)
<10.0Ω
Ω
UL<50V
Limits
RLPE-OFFSET 0.16 Ω
U ---V f ---Hz

R_{LO}

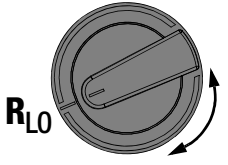
1



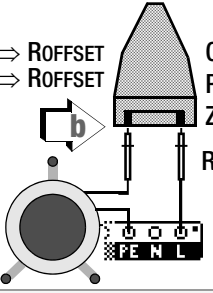
Messung ist nur an spannungsfreien Messobjekten möglich. Fremdspannung sperrt die Messung!
The measurement is only possible on voltage-free devices. Interference voltage disables the measurement!



2

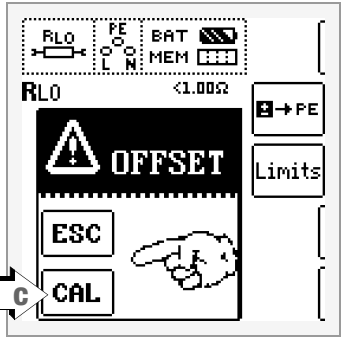


measuring cable (Z503K/L) ⇒ ROFFSET
extension cable ⇒ ROFFSET

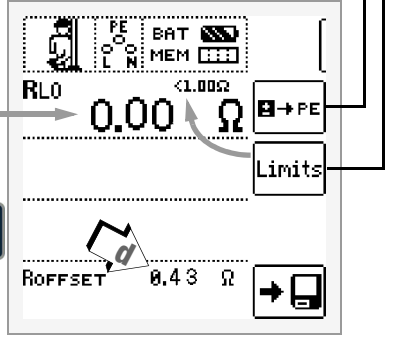


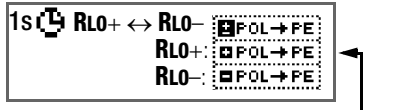
Option
PRO-JUMPER
Z503J
R < 10 Ω

3



4

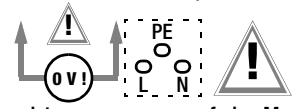




RLO < 0.10 Ω, 0.30 Ω, 1.00 Ω,
RLO < x.xx Ω (max. 10.0 Ω)

R_{ISO} (R_{INS}) RE($_{ISO}$)

1



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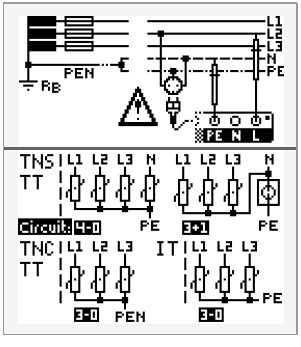
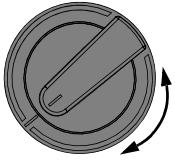
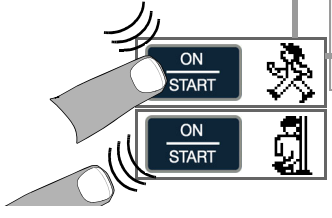
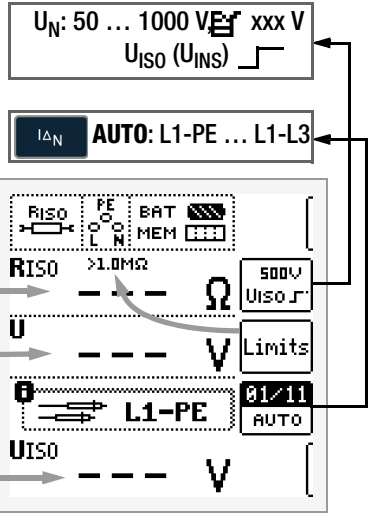


2

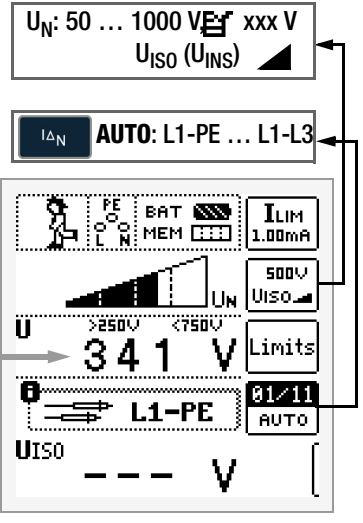




3a



3b



ON
START
1x

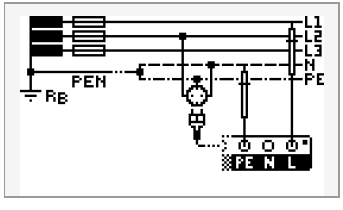
U_{L-N} / U_{L-PE} / U_{N-PE}

f

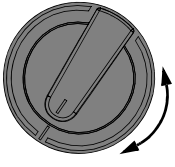
Standard

2-POL

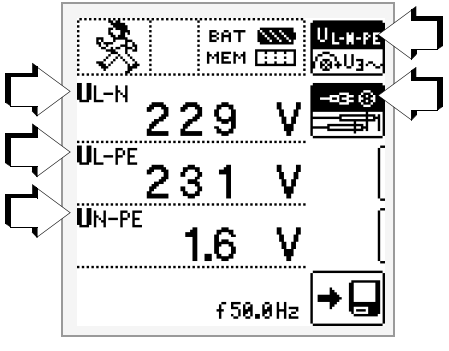
1



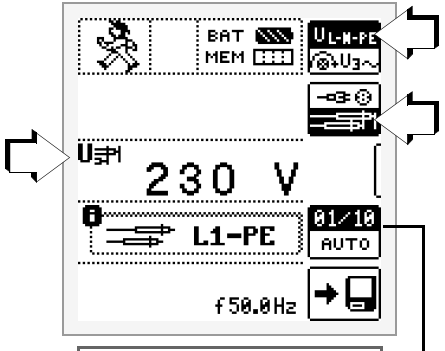
2



3a



3b

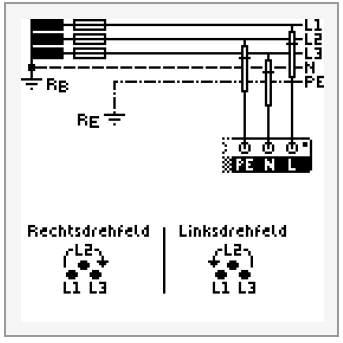


L1-PE, N-PE, L1-N …, AUTO

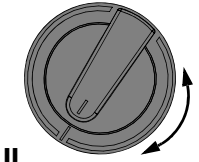
(D) U3~ Drehfeld

(GB) U3~ Phase sequence

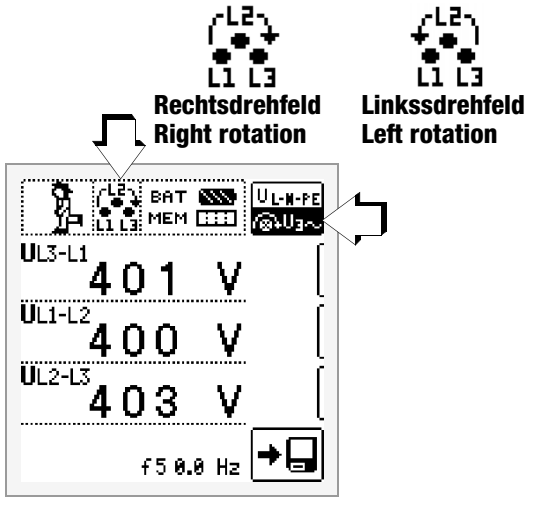
1



2



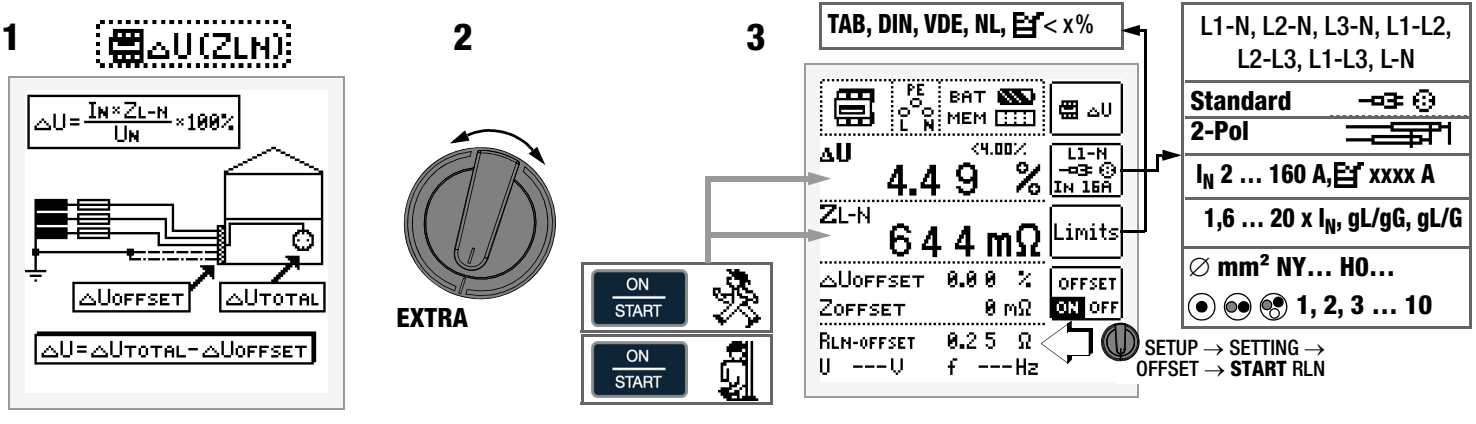
3



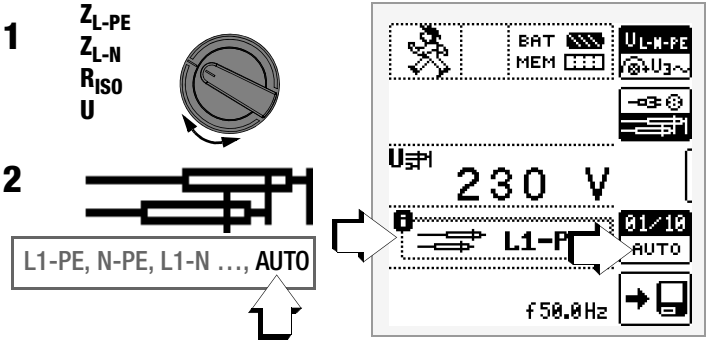
EXTRA

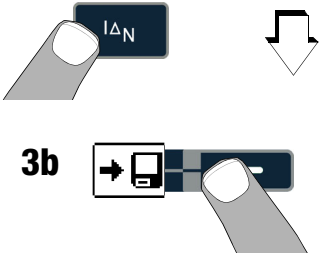
(D) Spannungsfallmessung

(GB) Voltage drop measurement



Z_{L-PE}, Z_{L-N}, R_{ISO}, U → AUTO





	Z_{L-PE}	Z_{L-N}	R_{ISO}	U
01/11	L1-PE	L1-N	L1-PE	L1-PE
02/11	L2-PE	L2-N	L2-PE	L2-PE
03/11	L3-PE	L3-N	L3-PE	L3-PE
04/11		L1-L2	N-PE	N-PE
05/11		L2-L3	L+N-PE	L1-N
06/11		L1-L3	L1-N	L2-N
07/11			L2-N	L3-N
08/11			L3-N	L1-L2
09/11			L1-L2	L2-L3
10/11			L2-L3	L1-L3
11/11			L1-L3	

(D) **Ausschalten**

(GB) **Switching off**

MEM + HELP

(D) Kontakt & Support

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info@gossenmetrawatt.com / support@gossenmetrawatt.com
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Freitag: 08:00 Uhr – 14:00 Uhr

Service, Reparaturen, Ersatzteile und Kalibrierungen

+49 911 817718-0
service@gossenmetrawatt.com
www.gmci-service.com

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Monday to Thursday: 8 a.m. to 4 p.m.
Friday: 8 a.m. to 2 p.m.

Service, repairs, spare parts and calibrations

+49 911 817718-0
service@gossenmetrawatt.com
www.gmci-service.com

(D) CE-Erklärung

Das Gerät erfüllt die Anforderungen der geltenden EU-Richtlinien und nationalen Vorschriften. Dies bestätigen wir durch die CE-Kennzeichnung. Die CE-Erklärung finden Sie auf unserer Website:

https://www.gmc-instruments.de/services/download-center/

Ein Kalibrierschein liegt dem Gerät bei.

(GB) CE Declaration

The instrument fulfils all requirements of applicable EU directives and national regulations. We confirm this with the CE mark. The CE declaration is available on our website

https://www.gmc-instruments.de/en/services/download-center/

A calibration certificate is included with the instrument.

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