

# CONDENSED OPERATING INSTRUCTIONS

4/7.24

3-447-066-03



## SECUTEST ST BASE (10) / SECUTEST ST PRO / SECUTEST ST PRIME / SECULIFE ST BASE (25)

TEST INSTRUMENTS FOR CHECKING  
THE ELECTRICAL SAFETY OF DEVICES

Read the complete operating instructions (available at [www.gossenmetrawatt.com](http://www.gossenmetrawatt.com)). The condensed operating instructions do not replace the complete operating instructions!

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# 1 SAFETY INSTRUCTIONS



Read and follow these instructions carefully and completely in order to ensure safe and proper use.

The instructions must be made available to all persons who use the instrument.

Keep for future reference.

- Observe this documentation, in particular all included safety information, in order to protect yourself and others from injury, and to prevent damage to the test instrument.
- Carefully and completely read and adhere to these condensed operating instructions, as well as the test instrument's operating instructions.  
The documents can be found at <http://www.gossenmetrawatt.com>. Retain these documents for future reference.
- Tests/measurements may only be performed by a qualified electrician, or under the supervision and direction of a qualified electrician in the commercial sector. The user must be instructed by a qualified electrician concerning performance and evaluation of tests and/or measurements.
- 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 test instrument.  
Be aware that PPE may be required for the device under test and wear it if necessary.
- The functioning of active medical devices (for example pacemakers, defibrillators) and passive medical devices may be affected by voltages, currents and electromagnetic fields generated by the test instrument 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 test instrument.
- Use only the specified accessories (included in the scope of delivery or listed as options) with the test instrument.
- Carefully and completely read and adhere to the product documentation for optional accessories. Retain these documents for future reference.
- Use the test instrument in undamaged condition only.  
Inspect the test instrument before use. Pay particular attention to damage, interrupted insulation or kinked cables.  
Damaged components must be replaced immediately.
- Accessories and cables may only be used as long as they're fully intact.  
Inspect accessories and all cables before use. Pay particular attention to damage, interrupted insulation or kinked cables.
- Avoid plugging in or unplugging accessories (e.g. probes) while measurements are in progress.
- If the test instrument or its accessories don't function flawlessly, permanently remove the instrument/accessories from operation and secure them against inadvertent use.
- If the test 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.
- Do not use the test instrument and its accessories after long periods of storage under unfavorable conditions (e.g. humidity, dust or temperature).
- Do not use the test instrument and its accessories after extraordinary stressing due to transport.
- Only use the test instrument and its accessories within the limits of the specified technical data and conditions (ambient conditions, IP protection code, measuring category etc.).
- The test instrument and the accessories may only be used for the tests/measurements described in the documentation for the test instrument.
- The test instrument may only be connected to TN, TT or IT electrical systems with a maximum of 240 V

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(nominal voltage) which comply with applicable safety regulations (e.g. IEC 60346, VDE 0100) and are protected with a fuse or circuit breaker with a maximum rating of 16 A.

- Ensure compliant functionality of this test instrument within the scope of operational equipment testing through the use of a suitable calibrator.
- The test instrument is equipped with fuses. The test instrument may only be used as long as the fuses are in flawless condition. Defective fuses must be replaced.
- Do not perform any measurements in electrical systems with the test instrument. It has been neither designed nor approved for this purpose.
- Plugging in the measurement cables must not necessitate any undue force.
- Never touch conductive ends (of test probes for example).
- 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.
- Conduct a probe check after completing each test.
- The test instrument must be operated within the same electrical system as the DUT.
- Unexpected voltages may occur at DUTs (for example, capacitors can be dangerously charged). Take appropriate precautions.

In particular during high-voltage tests, be aware that dangerous residual voltage may be present at the HV test pistol and/or the device under test. Do not touch the device under test for any reason during high-voltage testing.

- The fuses may only be replaced when the test instrument is voltage-free, i.e. it must be disconnected from mains supply power and may not be connected to a measuring circuit.  
The fuse type must comply with the specifications in the technical data or the labeling on the test instrument.
- Test instruments with feature M01: The test instrument is equipped with a Bluetooth® module. Determine whether or not use of the implemented frequency band of 2.402 to 2.480 GHz is permissible in your country.
- Always create a backup copy of your measurement data. Please refer to the operating instructions for further information (see section 3, "Documentation").
- Observe and comply with respectively applicable national data protection regulations. Use the corresponding functions provided by the test instrument such as password protection, as well as other appropriate measures.
- Test reports must be checked for correctness and signed by the inspector.

Please read this important information!

### 2.1 INTENDED USE / USE FOR INTENDED PURPOSE

The SECUTEST ST BASE, the SECUTEST ST BASE (10), the SECUTEST ST PRO, the SECUTEST ST PRIME, the SECULIFE ST BASE, the SECULIFE ST BASE (25) and the SECULIFE ST PRIME are test instruments for testing the electrical protective measures of electrical devices, electrical medical equipment and electric welding equipment.

All test instruments include measuring and test functions for checking the effectiveness of the protective measures required in accordance with the respective test standards for the particular field of technology. Single measurements as well as test sequences can be executed.

Test sequences (semi-automatic test procedures) can be used in an integrated, i.e. preconfigured form, or defined individually by the user.

The integrated test sequences consist of a preconfigured series of individual tests with subsequent documentation, as stipulated in the respective standard. They can thus be used to repeatedly and efficiently perform standards-compliant tests. Their progress is interrupted by safety-related pauses, as well as associated warnings and instructions. As a result, the level of protection provided to the user is greater than demanded by sections 4.1.6 and 4.1.7 of standard "IEC / 61557-16 / DIN EN 61557-16 / VDE 0413-16" with regard to "automated test sequences".

The integrated test sequences can be used to comply with the following standards:

- EN 50699 / VDE 0702  
Recurrent Test of Electrical Equipment
- EN 50678 / VDE 0701  
General Procedure for Verifying the Effectiveness of the Protective Measures of Electrical Equipment After Repair
- IEC 62353 / EN 62353 / VDE 0751-1  
Medical electrical equipment – Recurrent test and test after repair of medical electrical equipment
- IEC 60974-4 / EN 60974-4 / VDE 0544-4  
Arc welding equipment– Part 4: Periodic inspection and testing
- NEN 3140  
Bedrijfsvoering van elektrische installaties – Laagspanning
- VDE 0701-0702 (withdrawn) / ÖVE E 8701 / SNR 462638  
Inspection after repair, modification of electrical appliances – Periodic inspection on electrical appliances
- IEC 62368 / EN 62368 / VDE 0868-1  
Audio/video, information and communication technology equipment
- IEC 62911 / EN 62911 / VDE 0868-911  
Audio, video and information technology equipment – Routine electrical safety testing in production



#### Note

The integrated, preconfigured test sequences do not include all of the tests stipulated by the product standard which are required for type testing! They're restricted to the tests which are required as a rule after repair or during maintenance work and for occupational health and safety measures, as well as for quality assurance in production.



#### Note

Availability of the individual integrated test sequences depends on the test instrument type (SECUTEST ST... or SECULIFE ST...), the selected features (order features) and the enabled extensions (activations).

Refer to your order, test instrument and data sheet for details.

Suitable, database-driven test software is available, namely IZYTRONIQ. This software facilitates test organization and the management of test data from a broad range of test instruments. It also provides extended functions such as remote control in connection with the respective test instrument – support for extended functions depends on the test instrument and its order features or enabled extensions (activations). The software itself is included with test equipment sets, or can be purchased separately.

The test instrument housing is compact, impact resistant and includes an integrated rubber protector for mobile use, e.g. in factories, on construction sites and in industrial environments.

The front panels and housings of SECULIFE ST BASE and SECULIFE ST BASE 25 test instruments are also furnished with antimicrobial properties, which make it possible to use them in hygienically sensitive areas.

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

DUTs	Reason for Testing		
	Repair	Periodic Testing (occupational safety, DGUV)	Routine Testing in Production
Electric devices (as a rule with mains power cable)  including extension cords and multiple outlet strips	EN 50678 / VDE 0701  VDE 0701-0702 (withdrawn) / ÖVE E 8701 / SNR 462638  NEN 3140	EN 50699 / VDE 0702  VDE 0701-0702 (withdrawn) / ÖVE E 8701 / SNR 462638  NEN 3140	
IT equipment	Not defined  To a given extent:  IEC 62368 / EN 62368 / VDE 0868-1  IEC 62911 / EN 62911 / VDE 0868-911  VDE 0701-0702 (withdrawn) / ÖVE E 8701 / SNR 462638	EN 50699 / VDE 0702  VDE 0701-0702 (withdrawn) / ÖVE E 8701 / SNR 462638  NEN 3140	IEC 62911 / EN 62911 / VDE 0868-911
Medical electrical equipment	IEC 62353 / EN 62353 / VDE 0751-1	IEC 62353 / EN 62353 / VDE 0751-1	IEC 62353 / EN 62353 / VDE 0751-1  To a given extent:  IEC 60601-1 / EN 60601-1 / VDE 0750-1
Arc welding equipment	IEC 60974-4 / EN 60974-4 / VDE 0544-4	IEC 60974-4 / EN 60974-4 / VDE 0544-4	

Table 1: Standards – by Device and Reason for Testing

	EN 50678 / VDE 0701				
	EN 50699 / VDE 0702	IEC 60974-4 / EN 60974-4 / VDE 0544-4	IEC 62353 / EN 62353 / VDE 0751-1	IEC 60601-1 / EN 60601-1 / VDE 0750-1	IEC 62368 / EN 62368 / VDE 0868-1
	VDE 0701-0702 (withdrawn)/ ÖVE E 8701 / SNR 462638				IEC 62911 / EN 62911 / VDE 0868-911
<b>Single Measurements</b>					
Protective conductor resistance	•	•	•	•	•
Insulation resistance	•	•	•	•	•
Protective conductor current	•	•	•		•
Earth leakage current				•	
Primary leakage current		•			
Device leakage current			•		
Touch current	•	•	•	•	•
Current from welding circuit		•			
Patient leakage current				•	
Leakage current from applied part			•		
<b>Measuring method</b>					
Alternative (equivalent [device] leakage current)	•		•		
Differential current	•	•	•		
Direct	•	•	•	•	•

Table 2: Standard Designations for Available Tests

## 2.2 USE FOR OTHER THAN INTENDED PURPOSE

Using the instrument for any purposes other than those described in the instrument's operating instructions or these condensed operating instructions is contrary to use for intended purpose. Use for purposes other than those intended may result in unforeseeable damage!

## 2.3 LIABILITY AND GUARANTEE

The warranty provided by Gossen Metrawatt GmbH, and its liability, are governed by the applicable contractual and mandatory statutory provisions.

## 2.4 OPENING THE INSTRUMENT / REPAIRS

In order to ensure flawless, safe operation and to assure that the guarantee isn't rendered null and void, the 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 test instrument is prohibited.

If it can be ascertained that the 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.



## 3 DOCUMENTATION

### 3.1 INFORMATION CONCERNING THESE INSTRUCTIONS

The condensed operating instructions do not replace the complete operating instructions!

Read the complete operating instructions (available at [www.gossenmetrawatt.com](http://www.gossenmetrawatt.com)).

Read these instructions attentively and carefully. They contain all necessary information for safe use of the instrument. Comply with them in order to protect yourself and others from injury, and to avoid damaging the instrument.

The latest version of these instructions is available on our website:

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



#### Trademark Law

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#### Firmware Version

These condensed operating instructions describe a test instrument with software/firmware version FW 3.5.2. Refer to the operating instructions with regard to updates.

### 3.2 IDENTIFICATION OF WARNINGS

Instructions for your safety and for the protection of the instrument and its environment are provided as warnings and notes at certain points within these instructions.

They're laid out as shown below and are graded in terms of the severity of the respective hazard. They also describe the nature and cause of the hazard, the consequences of non-observance and what must be done to avoid it.



#### **DANGER**

Death or serious injury is almost certain.



#### **WARNING**

Death or serious injury is possible.



#### **CAUTION**

Minor or moderate injury is possible.

#### **ATTENTION**

Damage to the product or the environment



#### Note

Important information



#### Tip

Useful additional information or application tip

### 3.3 IDENTIFIERS

The following identifiers are used in this documentation:

Identifier	Meaning
<b>Control element</b>	Keys, buttons, menus and other controls
✓ Prerequisite	A condition etc. which must be fulfilled before a given action can be taken
▶ <b>Procedure</b>	Beginning of a procedural instruction
1. Procedural step	Steps of a procedure which must be completed in the specified order
↳ Result	Result of a procedural step
■ Enumeration ■ Enumeration	Bullet lists
Fig. 2: <i>Caption</i>	Description of the content of a figure
Table 3: <i>Table 1</i>	Description of the content of a table
Footnote	Comment

Table 4: Identifiers in this Document

### 3.4 ICONS IN THE DOCUMENTATION

The following icons are used in this documentation:

Icon	Meaning
	Read and adhere to the product documentation.
	General warning symbol
	Warning regarding electrical voltage

Table 5: Icons Used in this Document

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### 3.5 DEFINITION OF TERMS

Term	Definition
Test instrument	SECUTEST ST... or SECULIFE ST...
Device under test (DUT)	Electrical device, medical electrical equipment or electric welding equipment to be tested
Test object	Electronic representation of a specific DUT in the internal test instrument database (unequivocal allocation to a real DUT by means of an ID)
Test sequence	Series of semi-automatic tests or test steps
Integrated test sequence	A test sequence (see above) which is available upon delivery or after enabling in the instrument. Cannot be changed (test parameters are configurable).
User-defined test sequence	A test sequence (see above) which is created individually by the user

Table 6: *Definition of Terms*

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## 4 GETTING STARTED

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This chapter provides an overview of the initial steps with the instrument.

1. Read and adhere to the product documentation. In particular, observe all safety information in the documentation, on the tester and on the packaging.
  - ⇨ "Safety Instructions" 4
  - ⇨ "Applications" 6
  - ⇨ "Documentation" 9
2. Familiarize yourself with the instrument.
  - ⇨ "The Instrument" 13
3. Start up the instrument.
  - ⇨ "Initial Startup" 22
4. Familiarize yourself with instrument operation.
  - ⇨ "Configuration/Operation" 25
5. Prepare the test instrument for use.
  - ⇨ "Test Instrument Settings" 28
  - ⇨ "Inspector Management" 32
  - ⇨ "Internal Database" 33
6. Perform measurements.
  - ⇨ "Important Basic Information on Tests and Measurements" 34
  - ⇨ "Single Measurements" 37
  - ⇨ "Test Sequences (automatic test sequences)" 60
7. Generate a report if required.
  - ⇨ "Reports" 67
8. Transfer measurement data to IZYTRONIQ software if required.
  - ⇨ "Test Data Management – IZYTRONIQ Software" 67

## 5 THE INSTRUMENT

### 5.1 SCOPE OF DELIVERY

The scope of delivery varies depending on which test instrument variant has been ordered, and is country-specific. Information concerning the scope of delivery can be found in your order and in the data sheet, in which all order information is listed.

Please check the scope of delivery for completeness and intactness.

### 5.2 FEATURES

The test instruments are available with various features. These can be selected when placing an order. The basic test instruments include the following features:

	Features	SECUTEST ST BASE	SECUTEST ST BASE10	SECUTEST ST PRO	SECUTEST ST PRIME	SECUTEST ST PRO BT comfort	SECULIFE ST BASE	SECULIFE ST BASE25
Touchscreen / keyboard	E01			•		•	•	•
10 A RPE test current	G01		•	•		•	•	
25 A RPE test current	G02				•			•
2 <sup>nd</sup> test probe	H01			•		•	•	•
Voltage measuring input <sup>1)</sup>	I01			•		•	•	•
HV DC test	F01				•			
HV DC test with optional connection for HV test pistol (2-probe measurement)	F02							
SECUTEST DB+	KB01	○	○	•	•	•	•	•
SECUTEST DB COMFORT	KD01	○	○	○		•	○	•
Bluetooth®	M01					•		
Antimicrobial housing	—						•	•

<sup>1)</sup> For voltage measurement, or for connecting a current clamp sensor for current measurement or an AT3 adapter, and for temperature measurement via a Pt100 or Pt1000 temperature sensor

Key • Included, ○ Software functionality that can be enabled

Table 7: Basic Test Instrument Features

## 5.3 INSTRUMENT OVERVIEW

### 5.3.1 FRONT

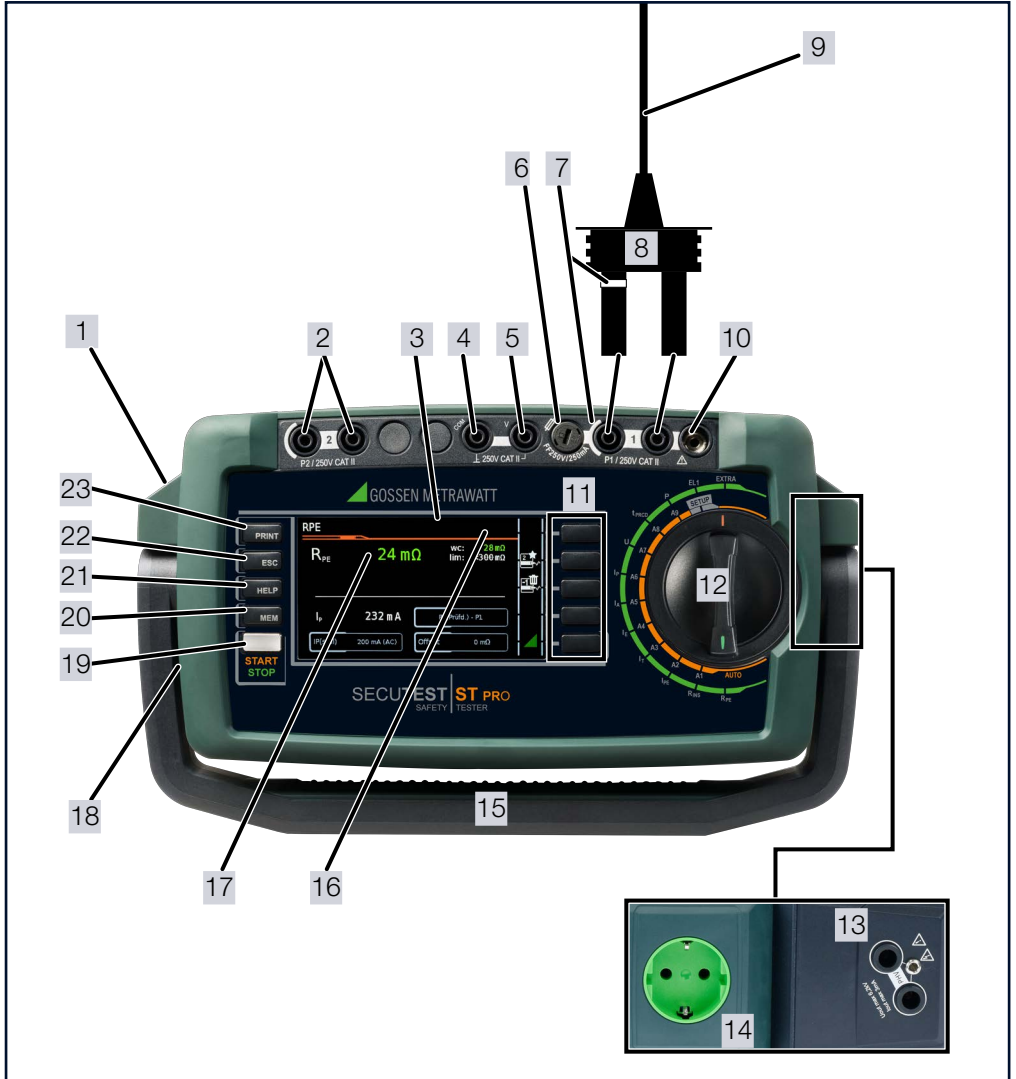












Fig. 9: Front Panel

1	2 USB masters	- For keyboard 
		- For scanner 
		- For printer 
		- For USB flash drive 
	1 USB slave	- For PC
2	2 connector sockets	Test probe (P2 for 2-pole measurement) <sup>1)</sup>

3	Displayed icons for devices connected to the USB master port	
	Display of special icons:	 – Measurement at IT system active  – Offset for RPE active
4	Voltage measuring inputs <sup>1)</sup>	
5		
6	Fuse compartment (fuse link for probe input P1)	
7	White/silver color-coded, fused high-current path	
8	Test probe (P1)	
9	Reinforcing sleeve:	Black: max. 16 A Green: max. 25 A
10	Supply power connection for SECUTEST CLIP (Z745H) <sup>2)</sup>	
11	Softkeys	
12	Rotary function selector switch	Orange rotary switch level Test sequences A1 to A9 (test sequences according to standard or user-defined test sequence)  Green rotary switch level Single measurements
13	HV test pistol connector socket (only SECUTEST ST PRIME with feature F02)	
14	Test socket (country-specific) for connecting DUTs  Attention! Depending on the measuring task, the test socket may be charged with line voltage.	
15	Carrying handle and tilt stand	
16	Mains to test socket. SFC: Normal status	
	Mains to test socket. SFC: N interrupted	
	High-voltage is present (with feature F01/F02)	
17	LCD panel	
18	Socket (country-specific) for mains power via inlet plug (country-specific)	
19	START STOP	Start/stop – Single measurement – Test sequence Finger contact
20	MEM function key	Database
21	HELP function key	Context-sensitive help (in some cases)
22	ESC function key	Go back
23	PRINT function key	Print via USB

<sup>1)</sup> Test instruments with feature H01 only, e.g. SECUTEST ST PRO

<sup>2)</sup> See also operating instructions for the device.



### Note

Features such as touchscreen, Bluetooth® etc. can be found in your order, on the instrument and in the data sheet.

## 5.3.2 SYMBOLS ON THE INSTRUMENT AND THE INCLUDED ACCESSORIES







Symbol	Meaning	Symbol	Meaning
	Warning concerning a point of danger (attention, observe documentation!)		If the guarantee seal is damaged or removed, all guarantee claims are rendered null and void.
250 V CAT II	Maximum permissible voltage and measuring category between connections P1 (test probe), the test socket and ground	 	The instrument may not be disposed of with household trash → "Disposal and Environmental Protection" 70.
	European conformity marking		Warning regarding dangerous electrical voltage

Table 8: Symbols on the Instrument and the Included Accessories



## 5.4 INCLUDED FEATURES

Single measurements and test sequences can be executed with the test instruments.

### Single Measurements

Switch Positions at **Green** Rotary Switch Level

Switch Position Description as of	Measuring Functions Test Current/Voltage
<b>Single measurements, rotary switch level: green</b>	
<b>Measurements at voltage-free objects</b>	
RPE ⇒ 39	$R_{PE}$ <b>Protective conductor resistance</b>
	$I_P$ Test current (200 mA) Feature G01 (e.g. SECUTEST ST BASE 10/PRO and SECULIFE ST BASE): 10 A <sup>1)</sup> and feature G02 (e.g. SECULIFE ST BASE25 and SECUTEST ST PRIME): 25 A <sup>1)</sup>
RINS ⇒ 40	$R_{INS}$ Insulation resistance
	$U_{INS}$ Test voltage
UHV ⇒ 42	$U_{HV}$ High-voltage test, DC
<b>Measurements at DUTs with line voltage</b>	
IPE ⇒ 43	$I_{PE\sim}$ <b>Protective conductor current, TRMS</b>
	$I_{PE\sim}$ AC component
	$I_{PE=}$ DC component
	$U_{LPE}$ Test voltage
	$U_{Gen}$ Reference voltage (alternative)
IT ⇒ 44	$I_{T\sim}$ <b>Touch current, TRMS</b>
	$I_{T\sim}$ AC component
	$I_{T=}$ DC component
	$U_{LPE}$ Test voltage
	$U_{Gen}$ Reference voltage (alternative)
IE ⇒ 45	$I_{E\sim}$ <b>Device leakage current, TRMS</b>
	$I_{E\sim}$ AC component
	$I_{E=}$ DC component
	$U_{LPE}$ Test voltage
	$U_{Gen}$ Reference voltage (alternative)
IA ⇒ 47	$I_{A\approx}$ <b>Leakage current from the applied part</b>
	$U_{LPE}$ Test voltage
	$U_{Gen}$ Reference voltage (alternative)
IP ⇒ 48	$I_{P\sim}$ <b>Patient leakage current, TRMS</b>
	$I_{P\sim}$ AC component
	$I_{P=}$ DC component
	$U_{LPE}$ Test voltage
U ⇒ 49	$U_{\approx}$ <b>Probe voltage, TRMS</b>
	$U_{\sim}$ Alternating voltage component
	$U_{=}$ Direct voltage component
	$U_{\approx}$ Measuring voltage, TRMS <sup>2)</sup>
	$U_{\sim}$ Alternating voltage component <sup>2)</sup>
$U_{=}$ Direct voltage component <sup>2)</sup>	
tPRCD <sup>3)</sup> ⇒ 52	$t_a$ PRCD time to trip for 10/30 mA PRCD
	$U_{LN}$ Line voltage at the test socket

Switch Position Description as of	Measuring Functions Test Current/Voltage
P  ⇒ 52	<b>Function test at the test socket</b>
	<b>I</b> Current between L and N
	<b>U</b> Voltage between L and N
	<b>f</b> Frequency
	<b>P</b> Active power
	<b>S</b> Apparent power
	<b>PF</b> Power factor
<b>Special measuring functions</b>	
EL1 ⇒ 54	Function test for extension cords with EL1/VL2E/AT3-III-E adapters: continuity, short circuit & reversed wires <sup>4)</sup>
EXTRA ⇒ 55	Reserved for expansion within the framework of software updates
	°C temperature measurement <sup>2)</sup> with Pt100/Pt1000 IZ current clamp measurement with current clamp sensor

- 1) 10/25 A RPE measurements are only possible with line voltages of 115/230 V and line frequencies of 50/60 Hz.
- 2) Measuring inputs only with test instruments including feature IO1 (e.g. SECUTEST ST PRO and SECULIFE ST BASE 25)
- 3) Measurement of time to trip isn't possible in IT systems.
- 4) No checking for reversed wires when the EL1 adapter is used.

### Integrated Test Sequences

The test instrument is equipped with preconfigured, integrated test sequences which are selected via the switch positions at the **orange** rotary switch level.



#### Note

Availability of the individual integrated test sequences depends on the test instrument type (SECUTEST ST... or SECULIFE ST...), the selected features (order features) and the enabled extensions (activations).  
Refer to your order, test instrument and data sheet for details.

The integrated test sequences are freely assignable, i.e. they can be individually assigned to the rotary switch positions (because there are more integrated test sequences than rotary switch positions). But the test instrument is preconfigured upon delivery.

Which integrated test sequences are assigned to the rotary switch positions on your test instrument upon delivery depends on several factors: test instrument type (SECUTEST ST... or SECULIFE ST...), selected features and enabled extensions.

Due to the great variety of possible combinations, a list of all delivery statuses would go beyond the scope of this documentation.

In order to provide you with an impression, the delivery status of a standard test instrument is listed below as an example.

SECUTEST ST PRO, German version, default settings:

Integrated Test Sequences						
<i>Switch Positions at Orange Rotary Switch Level</i>						
Rotary Switch Position	Standard / Test Sequence	Measurement Type	Connection	Type	Protection Class	Voltage Rating
A1	EN 50699	Active	Auto		Auto	
A2	EN 50678	Auto	Auto		Auto	
A3	VDE 0701-0702 (withdrawn)	Auto	Auto		Auto	

## Integrated Test Sequences

### Switch Positions at Orange Rotary Switch Level

Rotary Switch Position	Standard / Test Sequence	Measurement Type	Connection	Type	Protection Class	Voltage Rating
A4	IEC 60974-4	Active	Auto		Auto	U(0) DC
A5	IEC 62353	Passive	Auto	BF	Auto	
A6	EN 50699	Passive	Test socket		Auto	
A7	EN 50678	Passive	Test socket		Auto	
A8	EN 50699-VLTG	VLTG	EL1 adapter		PC I	
A9	EN 50699	Active	Auto		Auto	

Auto = automatic detection



#### Note

In the case of automatic detection, make sure that the right measurement type has been detected. Perform an active check if any doubts arise.

Details concerning test sequences can be found in the operating instructions.

## 5.5 RELEVANT STANDARDS

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

EN 61010-1	Safety requirements for electrical equipment for measurement, control and laboratory use – Part 1: General requirements
EN 60529	Test instruments and test procedures Degrees of protection provided by enclosures (IP code)
EN 61326-1	Electrical equipment for measurement, control and laboratory use – EMC requirements – Part 1: General requirements
EN 61326-2	Electrical equipment for measurement, control and laboratory use – EMC requirements – Part 2-2: Particular requirements – Test configurations, operational conditions and performance criteria for sensitive test and measurement equipment for EMC unprotected applications
EN 61557-16	Electrical safety in low voltage distribution systems up to 1000 V AC and 1500 V DC – Equipment for testing, measuring or monitoring of protective measures – Part 16: Devices for testing the effectiveness of protective measures of electrical devices and/or electrical medical devices

Table 9: Relevant Standards

## 5.6 TECHNICAL DATA

Reference Ranges	Line voltage	230 V AC $\pm 0.2\%$
	Line frequency	50 Hz $\pm 2$ Hz
	Line voltage	Sine (deviation between effective and rectified value $< 0.5\%$ )
	Ambient temperature	+23 °C $\pm 2$ K
	Relative humidity	40 ... 60%
	Load resistors	Linear
Nominal Ranges of Use	Nominal line voltage	100 V ... 240 V AC
	Nominal line frequency	50 Hz ... 400 Hz
	Line voltage waveform	Sinusoidal
	Temperature	0 ... +40 °C

Power Supply	Supply network	TN, TT or IT	
	Line voltage	90 V ... 264 V AC	
	Line frequency	50 Hz ... 400 Hz	
	Power consumption	200 mA DUT: 10 A DUT: 25 A DUT:	Approx. 32 VA Approx. 105 VA Approx. 280 VA
	Mains to test socket (e.g. for function test)	Continuous max. 3600 VA, power is conducted through the instrument only Switching capacity $\leq$ 16 A, ohmic load, the AT3-IIS32 (Z745X) adapter (for example) can be used for current $>$ 16 A AC	
Ambient Conditions	Operating temperature:	+0 ... +40 °C	
	Storage temperature:	-20 ... +60 °C	
	Relative atmospheric humidity:	Max. 75%, no condensation allowed	
	Elevation:	Max. 2000 m	
	Place of use	Indoors, except within specified ambient conditions	
		In order to avoid deviation due to excessive temperature fluctuation, e.g. after transport in low outdoor temperatures and subsequent operation in a warm indoor environment, it's advisable to wait until the test instrument has acclimatized before starting any measurements. If the test instrument is colder than the ambient air, condensation may occur at high humidity, i.e. condensate may accumulate on components. This could result in the occurrence of parasitic capacitances and resistances which affect the measuring circuit and measuring accuracy.	
Electrical Safety	Measuring category:	Designed for 300 V CAT II (but reduced to 250 V CAT II through the use of fuses for increased user safety. The user-friendly fuses are replaceable and replacements are easily obtainable.)	
	Pollution degree:	2	
	Protection category:	I per EN 61140	
	Nominal voltage:	230 V	
	Test voltage	2.3 kV AC 50 Hz or 3.3 kV DC (mains circuit / test socket to mains PE terminal, USB, finger contact, test probe(s) test socket)	
	Safety shutdown	At DUT differential current of $>$ 10 mA, shutdown time: $<$ 500 ms, can also be set to $>$ 30 mA in the event of probe current (electronic fuse) during: – Leakage current measurement: $>$ 30 mA~/ $<$ 500 ms <sup>1)</sup> – Protective conductor resistance measurement: $>$ 250 mA~/ $<$ 1 ms in case of continuous current $I >$ 16.5 A	
	Fuse links	Mains fuses: 2 x 500V/16A T Probe fuse: M 250V/250mA 10 A RPE test current (feature G01) only: 1 ea. FF 500V/16A	
Electromagnetic Compatibility (EMC)	Interference emission:	EN 55011, class A EN 55032, class A EN IEC 61000-3-2 EN IEC 61000-3-3	
	Interference immunity:	DIN EN 61326-1 DIN EN 61326-2-2	

Mechanical Design	Protection:	Housing: IP 40 (protection against ingress of solid foreign objects: $\geq 12.0$ mm diameter, protection against ingress of water: not protected) Test socket: IP 20 (protection against ingress of solid foreign objects: $\geq 1.0$ mm diameter, protection against ingress of water: not protected) per DIN EN 60529 / IEC 60529	
	Housing (W x H x D):	Approx. 295 x 145 x 150 mm	
	Height with handle:	170 mm	
	Weight:	SECUTEST ST BASE(10)/ PRO: SECULIFE ST BASE25: (depending on test instrument version) SECUTEST ST PRIME:	Approx. 2.5 kg Approx. 4.0 kg  Approx. 6.0 kg
	Display:	4.3" multi-display (9.7 x 5.5 cm), backlit, 480 x 272 pixels with 24 bit color depth (true color)	
Data Interfaces	Bluetooth® 2.1 + EDR (test instruments with feature M01 only)	Frequency range: Transmission intensity:	2400 ... 2483.5 MHz Max. 2.5 mW (class II)
	USB:	<ul style="list-style-type: none"> <li>- USB slave for PC connection / remote control <sup>2)</sup></li> <li>- 2 ea. USB master for data entry devices<sup>1)</sup> with HID boot interface, for USB flash drive for data backup, for USB flash drive for saving reports as HTML files for printers<sup>1)</sup></li> </ul>	
Database	Number of data records	50,000 1 data record = 1 DUT or location node or customer or individual measurement	

<sup>1)</sup> See operating instructions for compatible test instruments.

<sup>2)</sup> Remote control only with extension: "Remote Control via PC (IZYTRONIQ)" (included as standard feature with SECUTEST ST PRO and SECUTEST ST PRIME, and available with SECUTEST DB+ – Z853R or feature KB01).

Table 10: Technical Data

Initial startup of the test instrument is conducted by connecting it to the power supply. The following sections describe operation, as well as how to select various basic settings.

### 6.1 CONNECTING THE TEST INSTRUMENT TO THE MAINS

- See chapter 6 for nominal mains values (nominal ranges of use).
- Connect the mains cable to the test instrument via its inlet plug and insert the mains plug into an electrical outlet. Any rotary switch position can be selected.

If a mains outlet (earthing contact outlet) isn't available, or if only a 3-phase outlet is available, the adapter socket can be used to connect the phase conductor, the neutral conductor and the protective conductor. The adapter socket has three permanently attached cables and is included with the KS13 cable set.



#### DANGER

#### Electric Shock! Risk of Consequential Accidents!

Incorrectly connected power supply cables or connecting the instrument while energized may result in injury due to electrical voltage.

If connection isn't possible via an earthing contact outlet: Shut down mains power first. Then connect the cables from the coupling socket to the mains terminals using pick-off clips and finally activate the electrical circuit.

### Measurements in IT Systems

The **IT System** setting can be activated in the **SETUP** switch position (Setup 1/3) in the **All Measurements** submenu: with **"Meas. at IT Mains" set to Yes**: active leakage current measurements (or all measurements with reference to PE at the mains connection side) are disabled. Test sequences which include measurements of this sort are also disabled.

### 6.2 AUTOMATIC RECOGNITION OF MAINS CONNECTION ERRORS

The device automatically recognizes mains connection errors if the conditions in the following table have been fulfilled. The user is informed of the type of error, and all measuring functions are disabled in the event of danger.

Type of Mains Connection Error	Message	Condition	Measurements
Voltage at protective conductor PE to finger contact (START/STOP key)	Display	Press START/STOP key: $U > 25 \text{ V}$ Key $\rightarrow$ PE: $< 1 \text{ M}\Omega$ <sup>1)</sup>	All measurements disabled
Phase conductor L and protective conductor PE reversed and/or interrupted neutral conductor N		Voltage at PE $> 100 \text{ V}$	Not possible (no supply power)
Line voltage $< 180 \text{ V} / < 90 \text{ V}$ (depending on mains)		$U_{L-N} < 180 \text{ V}$ $U_{L-N} < 90 \text{ V}$	Possible under certain circumstances <sup>2)</sup>
Test for IT/TN system	Display	Connection $N \rightarrow PE > 20 \text{ k}\Omega$	Possible under certain circumstances

1) If the user of the test instrument is too well insulated, the following error message may appear: "Interference voltage at mains connection PE"

2) 10/25 A RPE measurements are only possible with line voltages of 115/230 V and line frequencies of 50/60 Hz.



## DANGER

### Electric Shock! Risk of Consequential Accidents!

Voltage from the protective conductor is also applied to the test socket's exposed protective contacts and can cause life-threatening injury if touched.

If, while testing protective conductor potential, you determine that the mains protective conductor is conducting voltage (in accordance with the first two cases shown in the table above), no measurements may be performed with the test instrument at this mains connection.

Disconnect the test instrument from the mains connection.

Arrange for rectification of the fault at the mains outlet / installation.



#### Note

Voltage at the electrical system's protective conductor PE may result in distorted measurement values during testing for the absence of voltage, or during leakage voltage measurements.



#### Note

##### Finger Contact

During this test for correct mains connection, a voltage measurement is performed between the finger contact and PE at the test instrument's mains connection, and its reference potential is acquired via the user's body resistance to the conductive start key. In order to obtain reliable measurement results, this resistance value must be less than 1 MΩ. If the user is wearing insulating shoes or gloves, or is standing on an insulating floor covering, erroneous measurements and display of the "Interference voltage at mains connection PE" message may result. Try to reduce resistance in this case, for example by touching ground potential with the other hand (e.g. a radiator, but not an insulating wall etc.).

## 6.3 CONNECTING TEST PROBE P1 OR P2

Insert the double plug from test probe P1 or P2 into socket 1 or 2 respectively such that the plug with the white ring makes contact with the socket with the vertical bar.

The white ring identifies the terminal for the high current conductor which is safeguarded by the neighboring fuse link.



## CAUTION

### Risk of Puncture When Using Test Probes with Coil-Cable (SK2W)!

Tensioning at the coil-cable may cause the test probe to snap back resulting in possible injury.

Grasp the test probe firmly, for example if it has been inserted into a jack socket.



#### Note

##### Probe Check

Conduct a probe check after completing each test.

If the fuse at test probe P1 is defective after testing has been started, all subsequent measurements conducted using this measuring path will be incorrectly evaluated as good!



#### Tip

#### **Difficulty in Contacting Exposed Conductive Parts when Using the Standard Probe with Test Tip**

In order to assure good contact, surface coatings must be removed from devices under test with special tools at a suitable location.

The tip of test probe P1 isn't suitable for scratching away paint, because this may impair its coating and/or mechanical strength. Brush probe Z745G may be more suitable than the test probe in certain individual cases.

## **6.4 INTERNATIONAL USE**

The test instrument can be used internationally. Refer to the operating instructions in this regard.



## 7 CONFIGURATION/OPERATION

### 7.1 BASIC TEST INSTRUMENT OPERATION

The test instrument is operated using the keys and the rotary switch on the test instrument siehe Kapitel "Instrument Overview" → 14.

#### Softkeys

The softkeys are assigned to different functions depending on the operating level (siehe Kapitel "User Interface Icons – Parameter and Softkey Icons" → 26).

#### Function Keys

Fundamentally, these keys have a permanently assigned function:

<b>PRINT</b>	Print via USB	<b>MEM</b>	Database	<b>START STOP</b>	Start/stop – Single measurement – Test sequence <i>Finger contact</i>
<b>ESC</b>	Go back	<b>HELP</b>	Help images		

In some situations, for example when using the softkey keyboard (see below), an alternative function appears at the display.

### 7.2 ENTERING TEXT AND NUMBERS

A softkey keyboard is displayed for entering text, numbers and characters (e.g. for entering an offset, a test object ID number, type designations, comments etc.), which is operated by means of the softkeys. In the case of test instruments with touchscreen (feature E01), entry is more convenient via the touchscreen keyboard.

Alternatively, entries can also be made via a connected USB or Bluetooth® keyboard (only with feature M01).

#### Overview of Entries via the Softkey Keyboard

The diagram illustrates the softkey keyboard interface. On the left, a vertical column of softkeys is shown with their functions:

- PRINT**: Switch between keypad & display panel
- ESC**: Exit entry mode without applying
- HELP**: Scroll up
- MEM**: Scroll down
- A key with a checkmark icon: Accept character at cursor position in display panel

The central display shows a "Device" and "Description" header, a "Display Panel" with a cursor, and a "Keypad" with numbers and letters. On the right, a vertical column of softkeys is shown with their functions:

- A key with a delete icon: Delete characters from right
- A key with "abc": Switch between upper/lower case and symbols
- A key with a right arrow: Scroll right
- A key with a left arrow: Scroll left
- A key with a checkmark icon: Accept entry

#### Overview of Entries via the Touchscreen Keyboard (feature E01)

- Briefly pressing the shift key once causes the next character to appear in uppercase.
- Pressing the shift key for a longer period of time causes all following characters to appear in uppercase.
- The cursor can be positioned as desired by pressing the display panel at the respective point in the existing text.









\* Also via assigned softkey

The diagram illustrates the touchscreen keyboard interface. The display shows a "MEM" header, "Device" and "Description" fields, and a "Display" area with a cursor. Below the display is a "Keypad" with numbers and letters. On the right, two softkeys are shown with their functions:

- A key with a delete icon: Delete characters from right \*
- A key with a checkmark icon: Accept entry \*

### 7.3 USER INTERFACE ICONS – PARAMETER AND SOFTKEY ICONS

Icon	Setup Page	Parameters and Their Significance Complete overviews of all icons are included in the full operating instructions.
	1/3	<b>All measurements:</b> Ref. voltage: Voltage to which measured leakage current values are standardized, residual current protection: value for residual current monitoring (10/30 mA)
	1/3	<b>Autom. measurem.:</b> Set parameters for test sequences: start and end view, consider measuring uncertainty (yes/no), auto measuring point (yes/no), auto-store (off/on), auto-print (off/on), skip steps (off/on), skipped steps (save / don't save), preselection of available integrated test sequences – restart may be necessary! <b>Caution:</b> Assignments for switch positions A1 through A9 are lost in this case.
	1/3	<b>Database:</b> deletion,  statistics, <b>with inserted USB stick</b> database  save,  restore,  export,  import
	1/3	<b>System:</b> set general device parameters: culture (language, keyboard layout),  date/time,  extensions,  default settings,  brightness,  volume,  touch calibr. (only with feature E01),  self-test
	2/3	<b>System information:</b> query software and hardware version, serial number, build number, calibration data and memory occupancy
	2/3	<b>Inspector:</b> select inspector from list,  add new inspector
	2/3	<b>Printer:</b> printer selection for USB master port: connected,  disconnected
	2/3	Test reports: select memory mode and information to be contained in the test report
	3/3	User sequences:  manage sequences,  load from file
	3/3	Barcode scanner: barcode scanner configuration
—		<b>Functions and Their Significance</b>
		Set classification parameters for the respective test sequence (test sequences at switch positions A1 through A9)
		Accept parameters, acknowledge message
		Cancel single measurement or test sequence
		Evaluate measurement or visual inspection with OK or not OK (toggle key)
		Continue test, next test step in the test sequence
		Left icon: direct selection key for measuring type (connection type ...) or measuring method (direct ...) Right icon: selection between two statuses (no submenu)
		Start evaluation – record measured value. Each time this softkey is pressed, an additional measured value is saved and the number is increased by one.
		Left icon: repeat measured value recording Right icon: repeat test step

Icon	Setup Page	Parameters and Their Significance Complete overviews of all icons are included in the full operating instructions.
 		Left icon: delete measured value Right icon: skip individual tests in a test sequence
		Display measured values from performed measurements and test sequences
 		Magnifying glass icon: show (+) or hide (-) details regarding database objects or selected measurements
		Enter a new ID for a test object either before or after a test, and in case the ID has not yet been entered to the structure
 		Save measurement data / save measurement data as (with display of directory path / ID or new entry of an ID other than the preselected one)

### SETUP



After initial startup (see chapter 7), basic system parameters must first be configured. Then you'll need to decide which standard designations will be used for the integrated, preconfigured test sequences and, if necessary, change the assignment of test sequences to rotary switch positions.



#### Note

The standard designation cannot be changed retroactively! Stored measurements retain the standard designation and it's used in the test report.

For this reason, select the standard designation carefully during initial startup.

As soon as the standard designation has been changed, the new designation is used in all future tests.

### 8.1 SYSTEM PARAMETERS

Basic system parameters must first be set:

Setup 1/3 > System 1/2 > Culture > **Language**

Setup 1/3 > System 1/2 > Culture > **Keyboard Layout**

Setup 1/3 > System 1/2 > **Date/Time** (for report generation)

Setup 1/3 > System 2/2 > **Brightness** (display brightness as %)

### 8.2 TEST STANDARDS / CONFIGURATION OF INTEGRATED TEST SEQUENCES

Test sequences in accordance with the standards (also called measurement or test sequences) are preconfigured and integrated into the test instrument. They consist of a series of single tests with subsequent documentation, as stipulated in the respective standard. They can thus be used to repeatedly and efficiently perform standards-compliant tests. Additional information is available in chapter 14 „Reports“.

In order to use the integrated test sequences, they have to be prepared during initial startup:

The integrated test sequences are identical in terms of content, but they have different national designations depending on the respective country (DIN, VDE, ÖNORM, SNR etc.). Furthermore, there are variants for each integrated test sequence, e.g. for testing PRCDs.

This is why a standard designation must first be selected in the test instrument for the integrated test sequences.



#### Note

Selection of the standard designation is mandatory and must be completed during initial startup.

Standards which are not needed can be deactivated in order to increase clarity.

The integrated test sequences are run in orange rotary switch positions A1 through A9. Integrated test sequences are preassigned to each rotary switch position at the factory, but these assignments can be changed. You can assign a different integrated test sequence to a rotary switch position if required, or leave the preselected, integrated test sequences as they are.

#### 8.2.1 SELECTING THE STANDARD DESIGNATION AND DEACTIVATING STANDARDS

During initial startup, the desired national standard designation must be selected for each integrated test sequence.

The integrated test sequences are identified with this designation:

- For display at the test instrument (routine daily work)
- In the test results saved to the test instrument (and when these results are exported, e.g. to IZYTRONIQ test software)  
(data management)
- In reports (verification requirement)



### Note

The standard designation cannot be changed retroactively! Stored measurements retain the standard designation and it's used in the test report.

For this reason, select the standard designation carefully during initial startup.

As soon as the standard designation has been changed, the new designation is used in all future tests.

Standards which are not needed can be deactivated in order to increase clarity.

The settings can be found under **SETUP > Autom. measurement**. Each standard for which a test sequence is integrated is displayed there.

1. **SETUP 1/3 > Autom. measurement**.

2. Scroll through the menu pages until the individual standards appear.

3. Select the first standard via the softkey.

↳ All possible standard designations are displayed.

(An overview of all available standard designations can be found on the following page).

4. Select the desired standard designation with the corresponding softkey.

Alternatively, the standard (the test sequence) can be deactivated by selecting the **off** entry.

↳ The menu is returned to the standards display in **Autom. measurement**.

5. Repeat this procedure for all standards.

6. Finally, confirm with the green checkmark.

↳ The settings are saved.

## Overview of Integrated Standards



### Note

Availability of the individual integrated test sequences depends on the test instrument type (SECUTEST ST... or SECULIFE ST...), the selected features (order features) and the enabled extensions (activations).

Refer to your order, test instrument and data sheet for details.

### SETUP > Autom. measurement

4/7 > VDE 0701-0702 >

based on  
OVE E 8701  
SNR 462638  
VDE 0701-0702

6/7 > EN 50678 >

based on  
EN 50678  
VDE 0701

5/7 > IEC 62353 >

based on  
EN 62353  
IEC 62353  
VDE 0751-1

6/7 > EN 50699 >

based on  
EN 50699  
VDE 0702

5/7 > IEC 60974-4 >

based on  
EN 60974-4  
IEC 60974-4  
VDE 0544-4

6/7 > IEC 62368 >

based on  
EN 62368  
IEC 62368  
VDE 0868-1

5/7 > NEN 3140 >

based on  
NEN 3140

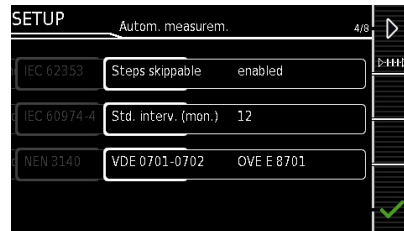
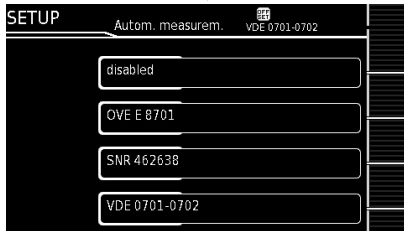
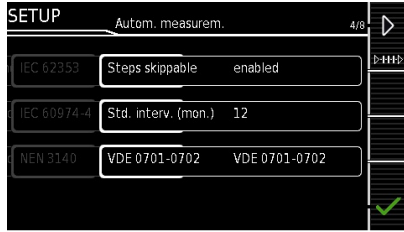
7/7 > IEC 62911 >

based on  
EN 62911  
IEC 62911  
VDE 0868-911

## Example

Configure the standard designations in the SECUTEST ST PRO.

**SETUP 1/3 > Autom. measurement. 4/7 >  
VDE 0701-0702**



Save the setting with the green checkmark.

The "OVE E 8701" designation is then used in the test instrument.

---

## 8.2.2 CONFIGURING ROTARY SWITCH POSITIONS

We recommend assigning frequently used test sequences to A1 through A8 and reserving rotary switch position A9 for special sequences, for which parameters often need to be adjusted.

1. Select an orange rotary switch position (**A1...A9**), after which the start page for the respective test sequence is displayed (i.e. the integrated test sequence set at the factory).
2. Select classification parameters .
  - ↳ The **Classification Parameters 1/2** page appears.  
The standard which is currently assigned to the respective rotary switch position is displayed under **Standard / Test Sequence**.
3. Select **Standard / Test Sequence**.
  - ↳ The **Standard / Test Sequence** page appears.  
All standards available on the test instrument are displayed here according to the selected setting (off / national designation – see Kap. 8.2.1).
4. Select the desired standard.
  - ↳ The menu is returned to the **Classification Parameters 1/2** page.
5. Finally, confirm with the green checkmark.
  - ↳ The settings are saved.
6. Repeat the above described procedure for each of the respective rotary switch positions.



## 9 INSPECTOR MANAGEMENT

The test instrument is equipped with inspector management under **Setup 2/3 > Inspectors**. You can set up several inspectors and switch amongst them. However, only one inspector can be logged on at any given time. The inspector remains logged on even after a power failure.

The “active” (selected) inspector appears in completed tests as the “Inspector”: tests are saved under the inspector’s name and can thus be allocated unequivocally to the inspector.

Upon delivery (default setting) the inspector is set up in the test instrument as “not defined”.



### Note

Create new users and delete the “not defined” default user for security reasons.



### Note

Test instrument settings are valid for all inspectors. Separate settings are *not* saved for the individual inspectors.

A complete description of inspector management is included in the full operating instructions.

### Adding an Inspector

1. **Setup 2/3 > Inspector > New Inspector**
2. See chapter 7.2 regarding data entry.
3. The inspector is added by pressing the green checkmark.
4. You can set a password for this inspector either now or later.

↳ A new inspector has been added.

### Setting a Password

1. Select the inspector to be edited from the list under **Setup 2/3 > Inspector > Edit Inspector**.
2. Confirm by pressing the softkey. A password can be assigned to the inspector using the “Create Password” option. See chapter 7.2 regarding data entry.
3. The password is assigned by pressing the green checkmark.

↳ The password is set.

### Selecting an Inspector

1. Select the desired inspector from the list under **Setup 2/3 > Inspector > Edit Inspector**.
2. Use the softkey to select an inspector.
3. If necessary, enter the password for the inspector.

↳ The inspector is selected.

### Deleting an Inspector

The currently selected inspector cannot be deleted.

1. First select an inspector that will not be deleted (⇌ “Selecting an Inspector” 32).
2. Then select the inspector to be deleted from the list under **Setup 2/3 > Inspector > Edit Inspector**.
3. Press the **Delete Inspector** softkey.

4. The inspector is deleted by pressing the green checkmark in the security prompt.

↳ The inspector is deleted.



### 10.1 CREATING TEST STRUCTURES

A complete test structure with data regarding customer properties, buildings, floors, rooms and test objects can be created in the test instrument.



#### Note

##### **Sensitive Data – Mandatory Data Protection!**

Customer data are confidential and must be protected.

Observe and comply with respectively applicable national data protection regulations.

---

This structure makes it possible to save the results of single measurements or test sequences to test objects belonging to various customers.

Up to 50,000 data records can be stored in the test instrument. The following applies in this regard: 1 data record = 1 DUT or location node or customer or individual measurement.

Structures can be created directly at the test instrument or at a PC (IZYTRONIQ software), and then transferred accordingly. They can also be saved to and restored from a USB flash drive.

The scope of functions provided by the database structure and the transfer options depend on the instrument variant and its features.

A complete description of database creation is included in the full operating instructions.

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# 11 IMPORTANT BASIC INFORMATION ON TESTS AND MEASUREMENTS

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## 11.1 IMPORTANT SAFETY INFORMATION

Observe and comply with the following safety information when performing individual measurements and test sequences.

### 11.1.1 SWITCHING LOADS – MAXIMUM STARTING CURRENT

The test instruments permit **active** testing of DUTs with a nominal current (load current) of up to 16 A. The test socket on the respective test instrument is equipped with 16 A fuses to this end, and the switching capacity of the internal relays is also 16 A. Starting current of up to 30 A is permissible.

#### ATTENTION

##### **Fusing Together of Relay Contacts!**

Despite extensive protective measures targeted at preventing overloading, the relay contacts may be fused together if starting current exceeds 30 A.

Follow the procedure described below and observe information concerning defective relays.

---

#### Procedure

Be absolutely sure to adhere to the sequence specified below when switching the live device under test. This prevents excessive wear of the mains relays at the test instrument.

##### ► Before measurement:

1. **DUT:** Turn the DUT off via its own switch.
2. **Test instrument:** Switch line voltage to the test socket.
3. **DUT:** Turn the DUT on via its own switch.
4. Perform the measurement.

##### ► After measurement:

5. **DUT:** Turn the DUT off via its own switch.
6. **Test instrument:** Deactivate line voltage to the test socket.

#### Safer Testing with Test Adapter

In the case of DUTs for which a starting current of greater than 30 A can be expected, we urgently recommend the use of a test adapter for larger starting currents: for example test adapters from the AT3 series (AT3- III E, AT3- IIS, AT3-IIS32, AT16DI or AT32DI).

#### Alternative: Passive Test

If necessary on the basis of the hazard assessment, testing can be conducted as a passive test (alternative method, formerly equivalent leakage current measuring method), i.e. without switching line voltage to the test socket.

## 11.2 MEASUREMENT WITH DUT CONNECTED TO LINE VOLTAGE



### WARNING

#### **Dangerous Touch Voltage!**

Exposed parts may conduct dangerous touch voltage during testing.

Do not touch under any circumstances!

Use a special cover in order to avoid touch contact.

Mains power is disconnected by the test instrument if leakage current exceeds approximately 10 mA (can also be set to 30 mA) (see “Residual Current Monitoring” in the operating instructions). However, this does not fulfill the requirements specified for a PRCD.



### DANGER

#### **Electric Shock! Risk of Consequential Accidents!**

If the “PROCEED in case of limit violation” setting has been selected (see operating instructions), there is a risk of electric shock.

Enhance safeguarding against touch contact.

Use a 30 mA RCD.

Wear personal protective equipment (PPE) (secure workstation).



### WARNING

#### **Mechanical Hazard due to DUT Start-Up!**

Serious injury may result if the DUT or any associated functions (e.g. rotating parts) are started up unintentionally.

Do not perform function testing until the DUT has passed the safety test!

## 11.3 MEASUREMENT OF INSULATION RESISTANCE AND EQUIVALENT LEAKAGE CURRENT (ALTERNATIVE MEASURING METHODS FOR LEAKAGE CURRENT)



### DANGER

#### **Electric Shock! Risk of Consequential Accidents!**

Testing is conducted with up to 500 V. If terminals L or N at the test socket or the test probe are touched, electric shock may occur which could result in consequential accidents (despite current limiting for the test to  $I < 3$  mA).

Do not touch terminals L or N at the test socket or the test probe.

## 11.4 UHV HIGH-VOLTAGE TEST, DC (SECUTEST ST PRIME ONLY)



### DANGER

#### High-Voltage! Life Endangering!

Testing is conducted with up to 6000 V. If terminals L or N at the test socket, the test probe or the HV test pistol are touched, electric shock may occur which could result in consequential accidents (despite current limiting for the test to  $I < 3$  mA).

Do not touch the L or N terminals at the test socket, the test probe's test tip, the test tip of the HV test pistol or the potentially energized DUT.



### DANGER

#### High-Voltage! Life Endangering!

Residual voltages may still be present after releasing the HV test pistol or after interrupting an on-going measurement.

Do not touch the test probe contacts.

Always wait until discharging has been completed (up to 9 seconds).

## 11.5 MEASURING PARAMETERS FOR SINGLE MEASUREMENTS AND TEST SEQUENCES

Measuring parameters which apply to individual measurements, as well as to test sequences, must be entered in the **SETUP** switch position.

### Setup 1/3 > All Measurements

Measuring Parameter	Meaning
Meas. at IT System (Yes/No)	Yes: active leakage current measurements (or all measurements with reference to PE at the mains connection side) are disabled. Test sequences which include measurements of this sort are also disabled.
Ref. Voltage L-PE (110 V, 115 V, 220 V, 230 V, 240 V)	Reference (line) voltage is the voltage to which the measured values for leakage current have been standardized. It's used in the case of leakage current for mathematical adaptation of measured current values to the specified voltage. Measurements with line voltage at the test socket: The setting value has no influence on the voltage with which the DUT is supplied via the test instrument's test socket. Leakage current measurements with "Alternative" measurement type: The setpoint value of the synthetic test voltage is derived from the value specified here.
Alt. Test Freq. (48 Hz ... 400 Hz)	Selectable frequency setpoint value for synthetic test voltage for all leakage current measurements of measurement type "Alternative", affecting the following measurements and/or rotary selector switch positions: <ul style="list-style-type: none"><li>– Single measurements (rotary switch level: green)</li><li>– Measurements in integrated test sequences</li><li>– Measurements included in user-defined test sequences (only with SECUTEST DB+ (Z853R or feature KB01)</li></ul>
Residual Current Protection (10 mA, 30 mA)	Selectable residual current for safety shutdown.
HV Acoustic Signal (Yes/No)	Yes: an acoustic signal is generated for the duration of the high voltage test.

## 12 SINGLE MEASUREMENTS

### 12.1 GENERAL

- Any measuring duration is possible.
- The respective measurement is started and ended by pressing **START/STOP**.
- No limit values can be specified for single measurements, and thus there's no evaluation.
- Checking is performed before each measurement in order to assure a trouble-free process, and to prevent any damage to the DUT.

### 12.2 MEASUREMENT PROCEDURE AND STORAGE

The measured value can be captured by pressing the save key or several measured values, i.e. a measurement series, can be acquired by repeatedly pressing the key. The save key indicates in each case whether one or several measured values have been acquired.







The measurements or measurement series can be saved after measurement has been completed.



#### Note

Measured values can only be added to intermediate buffer memory during a measurement. If no measured values have been saved to buffer memory before the **STOP** key (interrupt/pause, end) is pressed, the last value is automatically saved so that no "empty" measurements or measurement series are saved.

The procedure for saving data depends on whether or not the DUT has already been created as a test object in the test instrument's database. Only the latter is described in this document. Refer to the operating instructions for saving data under test objects that have already been created.

1. Start the measurement by pressing the **START/STOP** key  
↳ The icon shown at the right appears and indicates how many measurements have already been performed. 
2. End the measurement by pressing the **START/STOP** key (unless a specified measuring time has been stipulated).  
The save icon (floppy disk with a number) appears and indicates that one or more valid measured values have been captured, which can now be saved. 
3. Press the **save icon** (floppy disk).  
You're informed that you haven't selected a test object in the database. 
4. Optional: If you want to view the measured values, press the **AQV** key. Details concerning the individual measured value can be accessed via the **magnifying glass** icon.  
Use the green checkmark to return to the memory menu. 
5. Optional: Enter a comment via the icon which depicts a sheet of paper and a pencil. 
6. Press the **ID** key.  
You now have the option of entering a test object ID number. If you enter an ID here which is **not yet** included in the database, a prompt appears asking you if you want to enter a new test object. 



#### Note

If you haven't yet set up a customer, you must do so now. Follow the instructions which appear in the dialog.

↳ The test object can then be created:

7. Select either device or (medical) ME device.
8. (De)activate the QEDIT function (quick edit – with SECUTEST DB COMFORT only – Z853S or feature KD01).  
If QEDIT is activated, you can fill in additional fields for the test object in the next step.
9. Confirm with the green checkmark.

- 
10. If you activated the QEDIT function in the previous step, you can now fill in all the test object's fields.
  11. Confirm with the green checkmark.
    - ↳ An overview of the database appears along with the newly created test object.
  12. Press the **save icon** (floppy disk) in order to store the measurement results.
    - ↳ A message appears indicating that the data have been successfully saved and the display is switched to the measuring view.

**Note**

The storage process can be aborted by pressing the **ESC** key. The display is returned to the memory menu. All measured values can be deleted by once again pressing the **ESC** key.

**Note**

You can send the test results to a PC on which IZYTRONIQ software is running. This function is known as "push-print" and can be implemented via USB or Bluetooth®. Database expansion SECUTEST DB COMFORT (Z853S or feature KD01) and, if applicable, feature M01 (Bluetooth®) are required to this end. Complete information regarding push-print and a description of the application can be found in IZYTRONIQ online help.

## 12.3 RPE – PROTECTIVE CONDUCTOR RESISTANCE FOR PROTECTION CATEGORY I DUTS

### 1 Select measuring function



### 2 Select parameters



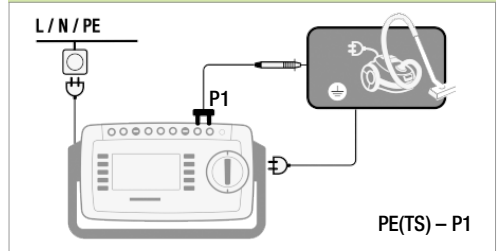
### 3 Set parameters

Measuring Parameter	Meaning
Measurement Type	
Permissible Test Current IT	
Passive: PE(TS) – P1 @ IT = 200 mA/10 A/25 A	Testing is conducted between the two protective conductor terminals: at the test socket <sup>3</sup> and test probe P1.
Active: PE(TS)-P1 @ IP = 200 mA	Same as PE(TS) – P1, but with line voltage to the test socket and alternating DC test current (PRCDs)
PE(mains) – P1 Permanently connected DUTs @ IT = 200 mA/10 A	Testing is conducted between the ground terminal at the mains and test probe P1.
PE(mains) - P1 clamp	@ IT = 10 A (see chapter 12.19)
P1 - P2 @ IT = 200 mA/10 A/25 A	Only test instruments with feature H01: 2-pole measurement between test probes 1 and 2 (see chapter 12.18)
IP(set)	Ip
200 mA	Test current: 200 mA AC (+/- DC)
10 A <sup>1</sup>	10 A test current (feature G01)

Measuring Parameter	Meaning
25 A <sup>1</sup>	25 A test current (feature G02)
f – only at 200 mA ~ (AC)	
50 ... 200 Hz	Test frequency (adjustable in steps)
Offset	
> 0 ... < 5 Ω <sup>2</sup>	Zero balancing for a selected reference point.

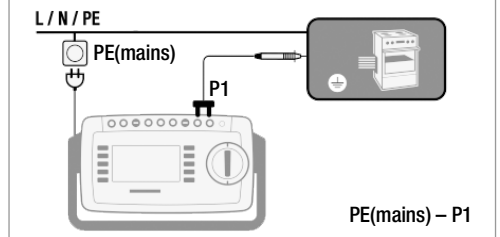
- 10/25 A RPE measurements are only possible with line voltages of 115/230 V and line frequencies of 50/60 Hz.
- The selected offset value is permanently saved and used in measurements performed in switch positions A1 to A9.
- Connection also via EL1, VL2E, AT3 adapter, AT16DI/AT32DI

### 4 Connect the DUT



- Connect the DUT to the test socket.
- Contact all conductive parts which are connected to the protective conductor with test probe P1.

### Special Case: Permanently Installed DUT



- Contact the conductive parts of the housing with test probe P1.

### 5 Start test



### 6 Acknowledge line voltage warning

Only when active: PE(TS)-P1



6 Save measured values to buffer memory 

7 Stop test 

8 Save measurements under ID no.

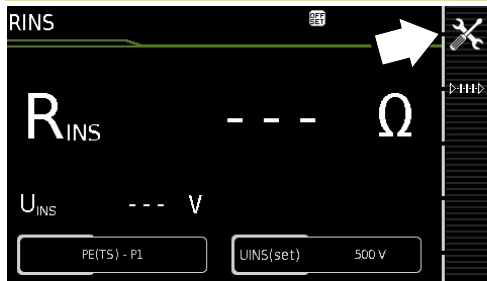
## 12.4 RINS – INSULATION RESISTANCE MEASUREMENT FOR PROTECTION CATEGORY I DUTS

1 Select measuring function




RINS

2 Select parameters



U+/U- = increase/decrease U<sub>INS</sub>(set)

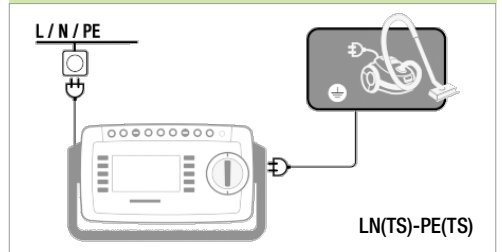
3 Set parameters 

Measuring Parameter	Meaning
Measurement Type	
LN(TS) – PE(TS)	PC I: Testing is conducted between short-circuited LN mains terminals at the test socket and the DUT's PE terminal. <sup>1)</sup>
LN(TS) – P1	See chapter 12.5.
P1 - P2	Only test instruments with feature H01: 2-pole measurement between test probes P1 and P2 (see chapter 12.18)
PE(mains) – P1 Permanently connected DUTs	Cable test: Testing is conducted between the ground terminal at the mains and test probe P1.

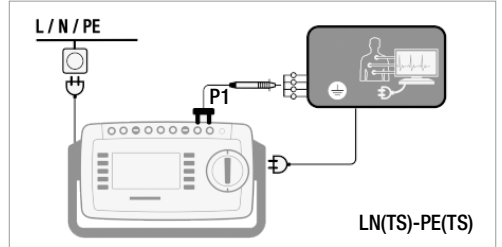
Measuring Parameter	Meaning
PE(TS) – P1	Testing is conducted between the PE terminal at the test socket and test probe P1.
LN(TS) – P1//PE(TS)	Testing is conducted between short-circuited LN mains terminals at the test socket and test probe P1, including PE at the test socket.
U<sub>INS</sub>(set)	U+/U-
> 50 ... < 500 V	Variable test voltage can be entered with the numeric keypad.

<sup>1)</sup> Connection also via EL1, VL2E, AT3-I I I E, AT3-I I S, AT3-I I S3, AT16DI/AT32DI or CEE adapter

4 Connect the DUT




Special Case: Inputs for Applied Parts



- Connect the DUT to the test socket.
- Contact the short-circuited inputs for the applied parts with test probe P1.

5 Start test

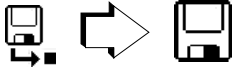


6 Save measured values to buffer memory 

7 Stop test 



## 8 Save measurements under ID no.



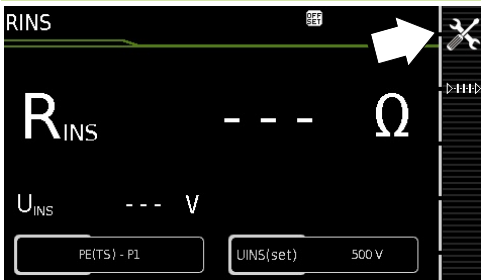
# 12.5 RINS – INSULATION RESISTANCE MEASUREMENT FOR PROTECTION CATEGORY II DUTS

## 1 Select measuring function



RINS

## 2 Select parameters

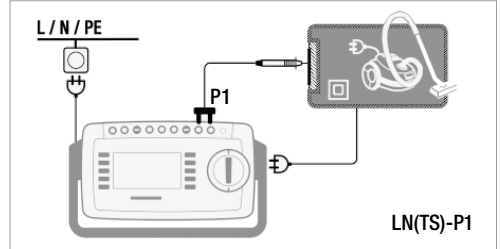


U+ = increase U<sub>ISO</sub>(set)  
U- = decrease U<sub>ISO</sub>(set)

## 3 Set parameters

Measuring Parameter	Meaning
Measurement Type	
LN(TS) – P1	Testing is conducted between short-circuited LN mains terminals at the test socket and test probe P1. (connection via test socket, VL2E, AT3-III E, AT3-IIS, AT3-II S32 or AT16DI/AT32DI adapter)
U<sub>INS</sub>(set)	U+ / U-
> 50 ... < 500 V	Variable test voltage can be entered with the numeric keypad.

## 4 Connect the DUT



- Connect the DUT to the test socket.
- Contact all exposed conductive parts with test probe P1.

## 5 Start test



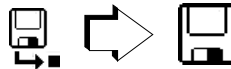
## 6 Save measured values to buffer memory



## 7 Stop test



## 8 Save measurements under ID no.



## 12.6 UHV – HIGH-VOLTAGE TEST (SECUTEST ST PRIME ONLY)



### DANGER

#### High-Voltage! Life Endangering!

Testing is performed with up to 6000 V DC. If terminals L or N at the test socket or the test tips of the test probe or the HV test pistol are touched, electric shock may occur which could result in consequential accidents (despite current limiting for the test to  $I < 3 \text{ mA}$ ).

Do not touch the L or N terminals at the test socket, the test probe's test tip, the test tip of the HV test pistol or the potentially energized DUT.

Measuring Parameter	Meaning
LN(TS) – P1	Testing is conducted between short-circuited LN mains terminals at the test socket and test probe P1 (connection via test socket).
PHV – P1	Testing is conducted between the HV test pistol (THV) and test probe P1. <sup>1)</sup>
UGen(set)	U+ / U-
$\geq 500 \dots \leq 6000 \text{ V}$	Variable test voltage can be entered with the numeric keypad.
tR	
$\geq 1 \dots \leq 999 \text{ s}$	Variable rise time can be entered with the numeric keypad

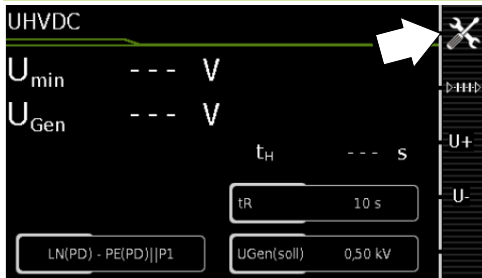
1) Only with feature F02

### 1 Select measuring function



UHV

### 2 Select parameters

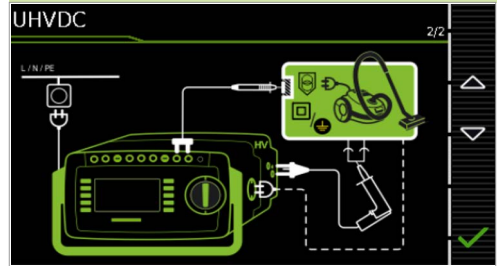


U+ / U- = increase/decrease UGen(set)

### 3 Set parameters

Measuring Parameter	Meaning
LN(TS) – PE(TS)    P1	Testing is conducted between short-circuited LN mains terminals at the test socket and test probe P1, including PE at the test socket.

### 4 Connect the DUT



### 5 Start test



### 6 Save measured values to buffer memory

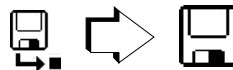


### 7 Stop test



Each time the test is triggered, a corresponding measured value is automatically saved to buffer memory.

### 8 Save measurements under ID no.



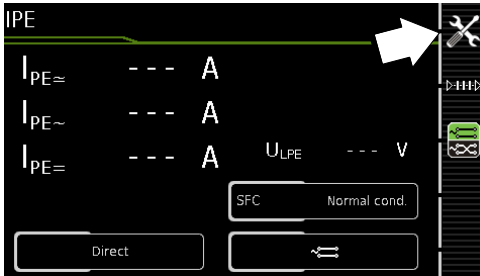
## 12.7 IPE – PROTECTIVE CONDUCTOR CURRENT

### 1 Select measuring function



IPE

### 2 Select parameters



### 3 Set parameters

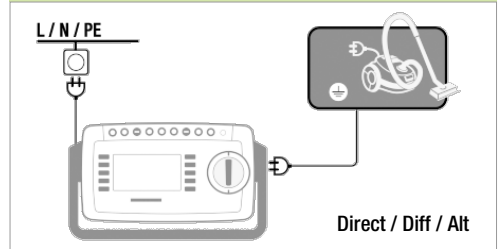
Measuring Parameter	Meaning
Measurement Type	
Direct	Direct measuring method (via test socket, AT16DI/AT32DI (direct))
Differential	Differential current method (via test socket)
Alternative	Alternative method (equivalent leakage current measuring method) (via test socket <sup>1)</sup> )
AT3 adapter	Only test instruments with feature I01: measurement with AT3 adapter: AT3-III E, AT3-IIS or AT3-II S32 See chapter 13.2.
Clamp	Only test instruments with feature I01: See chapter 12.19.
AT16/32DI diff.	Differential measurement, AT16DI/AT32DI (if there's a toggle switch on the adapter, it must be set to differential)
Single fault (SFC) – only with direct measurement type	
Normal status	Single fault simulation not active
N interrupted	Fault simulation – only phase and protective conductor are connected to the DUT. <sup>2)</sup>

Measuring Parameter	Meaning
Polarity <sup>3)</sup> – only with measurement type direct Differential, AT3 adapter <sup>4)</sup> and AT16/32DI diff <sup>4)</sup>	
Normal	Selection of polarity for mains voltage to the test socket
Reversed	

- 1) Connection also via VL2E, AT3 adapter, AT16DI/AT32DI
- 2) Only suitable for connecting the DUT to the test socket. Not suitable for measurements with AT16DI or AT32DI adapter.
- 3) Measurement must be performed with both mains polarities using the direct and differential measurement types (when connected with 3-phase adapters, the polarity selected on the test instrument is irrelevant). The largest value must be used for limit value assessment.
- 4) The polarity parameter only affects the DUT when the DUT is connected directly to the test socket, not when using 3-phase adapters.

Before conducting any leakage current measurements, make sure that the “Ref. voltage L-PE” and “Alt. Test Freq.” measurement parameters have been set correctly in SETUP (see chapter 11.5).

### 4 Connect the DUT



- Connect the DUT (to the test socket).

### 5 Start test



### 6 Acknowledge line voltage warning

Direct & Differential & AT3 Adapter:



- Switch DUT on

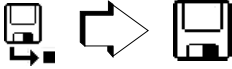
## 7 Save measured values to buffer memory

- Switch DUT off

## 8 Stop test



## 9 Save measurements under ID no.



# 12.8 IT – TOUCH CURRENT



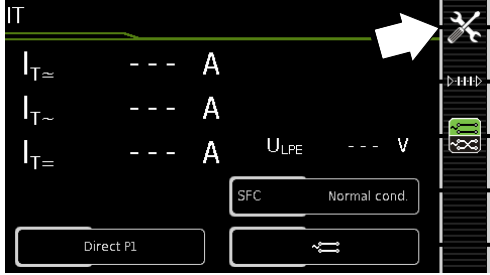
### Note

When measuring touch current on multiphase DUTs with measurement types Direct P1, Differential P1 and Perm. Conn. P1, it must be ensured that all non-conductively interconnected parts are also contacted and measured one after the other, and that the worst value is ascertained/evaluated. Interconnecting all accessible parts for the measurement may result in the canceling out of leakage currents from different phases so that dangerous active parts go unnoticed!





## 1 Select measuring function



## 2 Select parameters



## 3 Set parameters

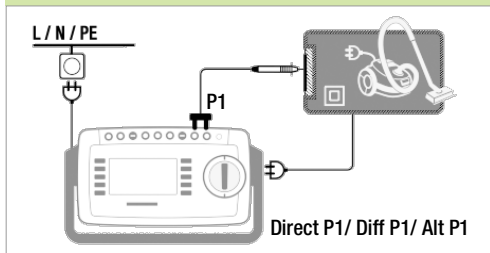
Measuring Parameter	Meaning
<b>Measurement Type</b> 	
Direct P1	Direct measuring method (via test socket <sup>1)</sup> )
Differential P1	Differential current method (via test socket)
Alternative P1	Equivalent leakage current method (via test socket <sup>1)</sup> or VL2E)
Permanent connection P1	Permanently installed DUT
Alternative P1–P2	Only test instruments with feature H01: Equivalent leakage current measuring method: 2-pole measurement between test probes 1 and 2 (see chapter 12.18)
<b>Single fault (SFC) – only with direct measurement type</b>	
Normal status	Single fault simulation not active
N interrupted	Fault simulation – only phase and protective conductor are connected to the DUT. <sup>2)</sup>
PE interrupted	Fault simulation active – the protective conductor is disconnected from the DUT for the duration of the measurement.
<b>Polarity <sup>3)</sup> – only with measurement type direct, differential and AT3 adapter</b> 	
 Normal	Selection of polarity for mains voltage to the test socket
 Reversed	

<sup>1)</sup> Connection also via AT3-IIIIE, AT3-IIS, AT3-II S32, AT16DI/AT32DI

- 2) Only suitable for connecting the DUT to the test socket. Not suitable for measurements with AT16DI or AT32DI adapter.
- 3) Measurement must be performed with both mains polarities using the direct and differential measurement types (when connected with 3-phase adapters, the polarity selected on the test instrument is irrelevant). The largest value must be used for limit value assessment.

Before conducting any leakage current measurements, make sure that the “Ref. voltage L-PE” and “Alt. Test Freq.” measurement parameters have been set correctly in SETUP (see chapter 11.5).

#### 4 Connect the DUT



- Connect the DUT to the test socket.
- Contact additional, exposed conductive parts which are not connected to the protective conductor with test probe P1.

#### 5 Start test



#### 6 Acknowledge line voltage warning

Direct & Differential:



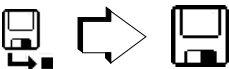
#### 7 Save measured values to buffer memory



#### 8 Stop test



#### 9 Save measurements under ID no.



## 12.9 IE – DEVICE LEAKAGE CURRENT



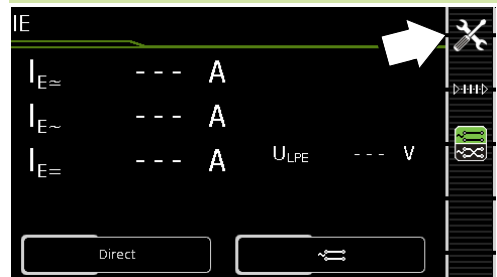
### Note

If device leakage current measurements are performed on multiphase DUTs, dangerous touch current components may be canceled out by leakage currents from other parts for all measurement types except alternative! For this reason, always perform an a touch current measurement as well. When measuring touch current, be sure to contact and measure each exposed conductive part, one after the other.

#### 1 Select measuring function






#### 2 Select parameters



#### 3 Set parameters

Measuring Parameter	Meaning
Measurement Type	
Direct	Direct measuring method (via test socket), optional probe contact
Differential	Differential current method (via test socket)
Alternative	Equivalent leakage current measuring method with probe contact (via test socket, AT16DI/AT32DI)

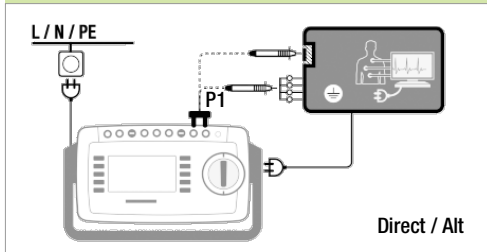
Measuring Parameter	Meaning
Permanent connection	Permanently installed DUT
AT3 adapter	Only test instruments with feature IO1: Measurement with AT3-IIIE, AT3-IIS or AT3-II S32 adapter See chapter 13.2.
Clamp	Only test instruments with feature IO1: See chapter 12.19.
AT16/32DI dir.	Direct measuring method, AT16DI/AT32DI (if there's a toggle switch on the adapter, it must be set to direct)
Polarity <sup>1)</sup> – only with measurement type direct, Differential, AT3 adapter <sup>2)</sup> and AT 16/32DI Dir <sup>2)</sup>	
 Normal	Selection of polarity for mains voltage to the test socket
 Reversed	

1) Measurement must be performed with both mains polarities using the direct and differential measurement types (when connected with 3-phase adapters, the polarity selected on the test instrument is irrelevant). The largest value must be used for limit value assessment.

2) The polarity parameter only affects the DUT when the DUT is connected directly to the test socket, not when using 3-phase adapters.

Before conducting any leakage current measurements, make sure that the **Ref. voltage L-PE** and **Alt. Test Freq.** measurement parameters have been set correctly in SETUP (see chapter 11.5).

#### 4 Connect the DUT



- Connect the DUT to the test socket.
- Contact exposed conductive parts which are not connected to the protective conductor with test probe P1.

- For DUTs with applied parts: Additionally contact the short-circuited inputs for the applied parts with test probe P1.

#### 5 Start test



#### 6 Acknowledge line voltage warning

Direct & Differential & AT3 & AT16/32DI Diff.



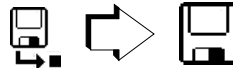
#### 7 Save measured values to buffer memory



#### 8 Stop test



#### 9 Save measurements under ID no.

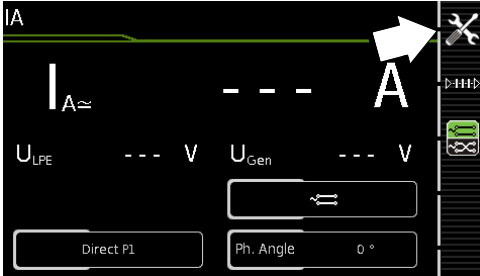


## 12.10 IA – LEAKAGE CURRENT FROM THE APPLIED PART

### 1 Select measuring function



### 2 Select parameters



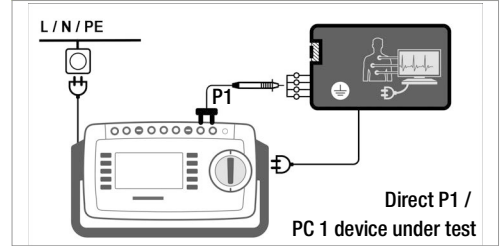
### 3 Set parameters

Measuring Parameter	Meaning
Measurement Type	
Direct P1	Direct measuring method (via test socket) with test probe P1
Alternative P1	Equivalent leakage current measuring method (via test socket) with test probe P1
Perm. conn. P1	Permanently installed DUT
Phase angle – for direct (P1) & perm. conn. (P1) only	
0° or 180°	Selectable phasing for the internal generator relative to mains phasing
Polarity <sup>1)</sup> – only with measurement type direct, differential and AT3 adapter	
Normal	Selection of polarity for mains voltage to the test socket
Reversed	

<sup>1)</sup> Measurement must be performed with both mains polarities using the direct and differential measurement types (when connected with 3-phase adapters, the polarity selected on the test instrument is irrelevant). The largest value must be used for limit value assessment.

Before conducting any leakage current measurements, make sure that the “Ref. voltage L-PE” and “Alt. Test Freq.” measurement parameters have been set correctly in SETUP (see chapter 11.5).

### 4 Connect the DUT



- Connect the DUT (to the test socket).
- Contact the short-circuited inputs for the applied parts with test probe P1.

### 5 Start test



### 6 Acknowledge line voltage warning

Direct:

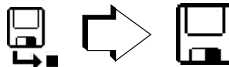


### 6 Save measured values to buffer memory

### 7 Stop test



### 9 Save measurements under ID no.

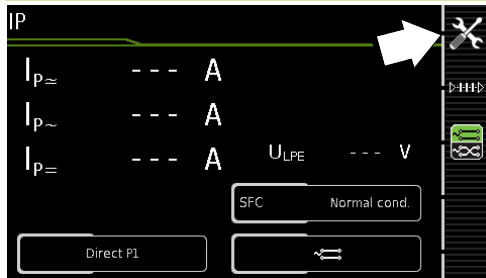


## 12.11 IP – PATIENT LEAKAGE CURRENT

### 1 Select measuring function



### 2 Select parameters



### 3 Set parameters

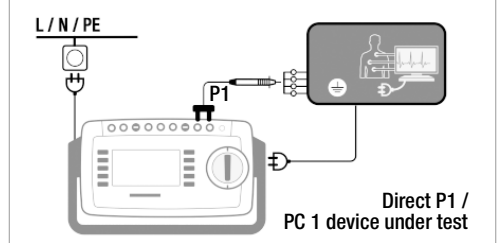
Measuring Parameter	Meaning
Measurement Type	
Direct P1	Direct measuring method (via test socket) with test probe P1 <sup>1)</sup>
Permanent connection P1	Permanently installed DUT
Single fault (SFC) – only with measurement type direct P1	
Normal status	Single fault simulation not active
N interrupted	Fault simulation active – only phase and protective conductor are connected to the DUT. <sup>2)</sup>
PE interrupted	Fault simulation active – the protective conductor is disconnected from the DUT for the duration of the measurement.
U low to APP	Fault simulation active – low voltage to applied part

Measuring Parameter	Meaning
Polarity <sup>3)</sup> – only with measurement type direct, differential and AT3 adapter	
Normal	Selection of polarity for mains voltage to the test socket
Reversed	

- 1) Connection also via AT16DI, AT32DI, AT3-IIS, AT3-IIS32, AT3-IIIE
- 2) Not suitable for measurements via test adapter.
- 3) Measurement must be performed with both mains polarities using the direct and differential measurement types (when connected with 3-phase adapters, the polarity selected on the test instrument is irrelevant). The largest value must be used for limit value assessment.

Before conducting any leakage current measurements, make sure that the “Ref. voltage L-PE” and “Alt. Test Freq.” measurement parameters have been set correctly in SETUP (see chapter 11.5).

### 4 Connect the DUT



- Connect the DUT to the test socket.
- Contact the short-circuited inputs for the applied parts with test probe P1.

### 5 Start test



### 6 Acknowledge line voltage warning



### 7 Save measured values to buffer memory

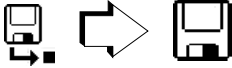




## 8 Stop test



## 9 Save measurements under ID no.



## 12.12 U – VOLTAGE MEASUREMENT (PROBE P1)


### 1 Select measuring function



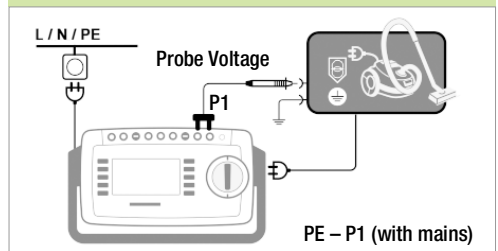
### 2 Select parameters



### 3 Set parameters

Measuring Parameter	Meaning
Measurement Type 	
PE – P1	Measurement of voltages with reference to PE, test socket remains voltage-free, for permanently connected DUTs
PE – P1 (with mains)	Measurement of voltages with reference to PE, line voltage is applied to the test socket
Polarity	
Normal / Reversed	<div style="display: flex; align-items: center;"> <div style="margin-right: 10px;"> <div style="width: 15px; height: 10px; background-color: black; margin-bottom: 2px;">NL</div> <div style="width: 15px; height: 10px; background-color: green; margin-bottom: 2px;">LN</div> </div>           Selection of mains voltage polarity at test socket (only for PE-P1 with mains)         </div>

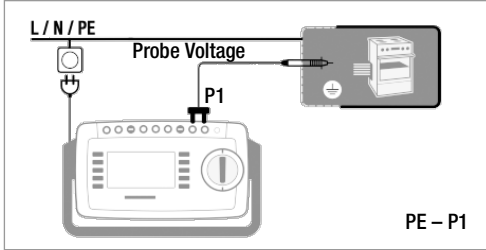
### 4 Connect the DUT



- Connect the DUT to the test socket.
- Contact the ungrounded output for safety extra-low voltage with test probe P1.
- Select line voltage polarity.



### Special Case: Permanently Installed DUT



- Contact all voltage conducting parts with test probe P1.

### 5 Start test



### 6 Acknowledge line voltage warning



Only for measurement type  
(with mains)

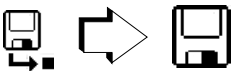
### 7 Save measured values to buffer memory



### 8 Stop test



### 9 Save measurements under ID no.



## 12.13 U – VOLTAGE MEASUREMENT (MULTIMETER)

(only with feature I01, e.g. SECUTEST ST PRO and SECULIFE ST BASE):

### 1 Select measuring function

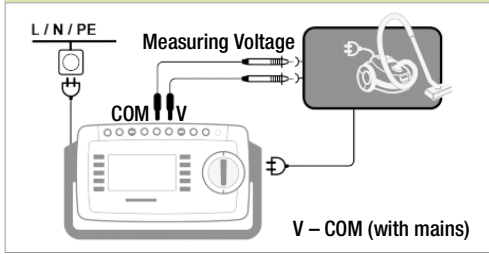
### 2 Select parameters



### 3 Set parameters

Measuring Parameter	Meaning
Measurement Type	
V – COM	TRMS value + AC + DC for permanently connected DUTs
V – COM (with mains)	TRMS value + AC + DC, with mains to test socket
Polarity	
Normal	Selection of polarity for mains voltage to the test socket (only with V – COM (with mains))
Reversed	

#### 4 Connect the DUT



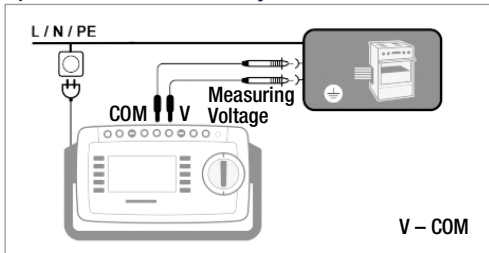
#### WARNING

#### Electric Shock! Risk of Consequential Accidents!

Risk of injury due to electric shock if unsuitable measurement cables are used.

Use only the included, contact-protected KS17-ONE measurement cables when measuring dangerous voltage.

#### Special Case: Permanently Installed DUT



- **When testing mains power packs or chargers:** Connect the DUT's mains plug to the test instrument's test socket.
- Connect the DUT's output, e.g. for measuring safety extra-low voltage, to the **V** and **COM** sockets.

#### 5 Start test



#### 6 Acknowledge line voltage warning



Only for measurement type  
(with mains)

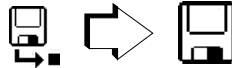
#### 7 Save measured values to buffer memory



#### 8 Stop test



#### 9 Save measurements under ID no.



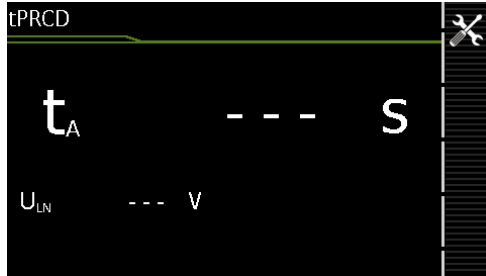
## 12.14 TPRCD – MEASURING TIME TO TRIP FOR PRCDs

### 1 Select measuring function

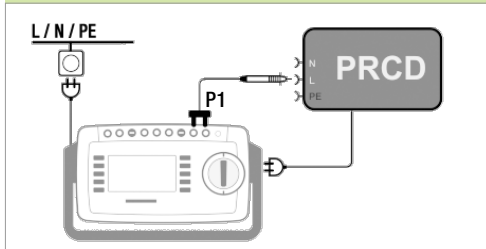
tPRCD



### 2



### 3 Connect the DUT



- Connect the PRCD to the test socket.

### 4 Start test (test current: 30 mA)



### 5 Acknowledge line voltage warning



### 6 Execute test

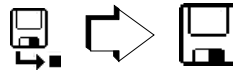
- Activate the PRCD.
- Contact neutral conductor L at the PRCD with test probe P1 (If necessary, ascertain by trial and error.)

The PRCD is tripped.

### 7 Testing is stopped automatically.

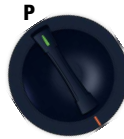
Ascertained time to trip is displayed.

### 8 Save measurements under ID no.

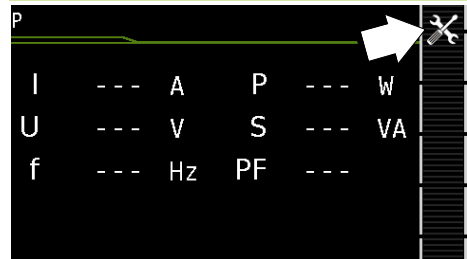


## 12.15 P – FUNCTION TEST

### 1 Select measuring function





### 2 Select parameters



### 3 Set parameters

Measuring Parameter	Meaning
Polarity	

Measuring Parameter	Meaning
 Normal	Selection of polarity for mains voltage to the test socket
 Reversed	

The following connection types are possible:

- Test socket
- CEE adapter (only for connection via single-phase CEE or “caravan socket”)
- AT3 adapter (AT3-IIIE, AT3-IIS, AT3-IIS32)
- AT16DI/AT32DI



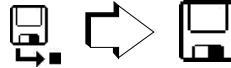
**Note**

These or similar adapters can be used for the function test (initial startup of the DUT), but measurement of apparent and active power, power factor and current consumption is only possible when the DUT is directly connected to the test socket or via the CEE adapter (single-phase CEE socket only).

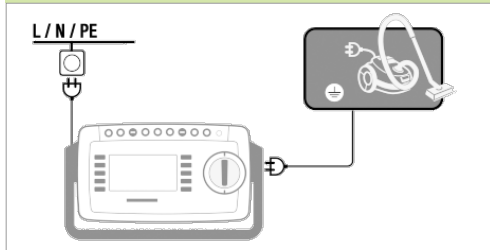
**8 Stop test**



**9 Save measurements under ID no.**



**4 Connect the DUT**



- Connect the DUT to the test socket.

**5 Start test**



**6 Acknowledge line voltage warning**



**7 Save measured values to buffer memory**



## 12.16 EL1 – FUNCTION TEST FOR EXTENSION CORDS (WITH SECUTEST ST PRIME IN EXTRA SWITCH POSITION)

### 1 Select measuring function

EL1



### 2 Select parameters



### 3 Set parameters

Measuring Parameter	Testing for		
	Continuity L(1/2/3), N	Short-Circuit Between: L(1/2/3), N	Reversed Polarity / Clockwise Phase Sequence
EL1 adapter	X	X	— <sup>1)</sup>
VL2E adapter	X	X	X
AT3-IIIE adapter	X	X	X

<sup>1)</sup> Testing for reversed polarity is only performed for Swiss outlets, and only in combination with feature B09.



#### Note

This function permits an evaluation of the continuity of the extension cord's active conductors L (1, 2, 3) and N. The PE conductor isn't tested in this case!

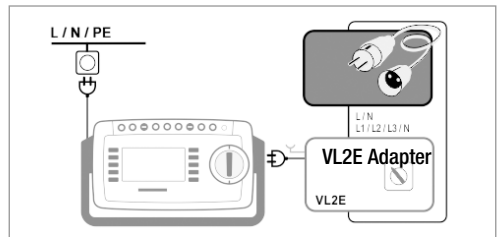
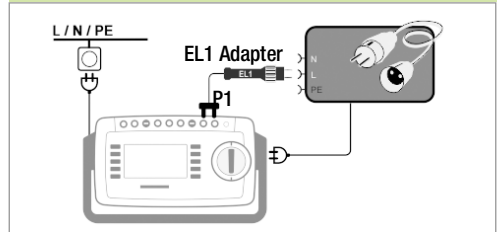
See corresponding single measurements for the testing of  $R_{PE}$  and  $R_{INS}$ .



#### Note

See siehe Kapitel "Test Sequences (automatic test sequences)" → 60 with regard to testing extension cords per DIN VDE 0701-0702, for which RPE and RINS are measured.

### 4 Connect the DUT



#### Connecting the EL1 Adapter

- Connect the EL1 adapter to the special P1 sockets at the test instrument.
- Connect the plug at the end of the extension cord to the test socket.
- Connect the coupling socket at the other end of the extension cord to the plug at the EL1 adapter.

#### Connecting Test Adapters VL2E and AT3-IIIE

- Connection examples can be found in chapter 13.2.

### 5 Start test



Continuity test for L and N

### 6 Save measured values to buffer memory



### 7 Stop test



### 8 Save measurements under ID no.

## 12.17 EXTRA – SPECIAL FUNCTIONS

### 12.17.1 SECUTEST ST BASE 10

#### 1 Select measuring function

##### EXTRA



#### 2

##### EXTRA

Scan this QR-Code with your Smartphone or Tablet Computer to read the testers manual online.  
(<https://dev.gmc-instruments.de/secutest/urls/2/en-GB>)



If a QR code is displayed:

Scanning the code makes it possible to download the current operating instructions from [www.gossenmetrawatt.com](http://www.gossenmetrawatt.com), which can be read at a tablet.

### 12.17.2 FEATURE I01 (E.G. SECUTEST ST PRO AND SECULIFE ST BASE 25)

#### 1 Select measuring function

##### EXTRA



In this case, additional functions are assigned to the rotary switch's EXTRA position.

#### 2 Temp. or IZ

##### EXTRA

Measurements

temperature

Current (via clamp)

- Select the desired measuring function.

## Temp. – Temperature Measurement

#### 3

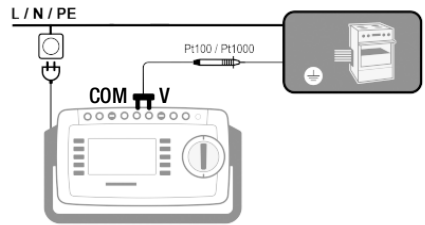
temp.

T<sub>C</sub> --- °C

T<sub>F</sub> --- °F

V-COM Pt100(O)

#### 4 Connect the DUT



Temperature measurement is conducted with either a Pt100 or a Pt1000 temperature sensor – the sensor type is automatically detected internally.

#### 5 Start test

START  
STOP

#### 6 Save measured values to buffer memory



#### 7 Stop test

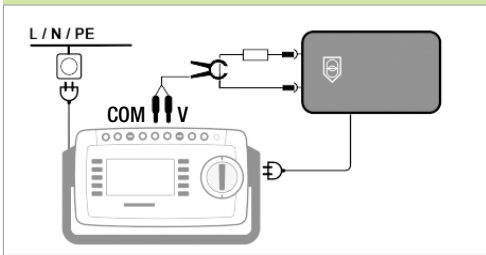
START  
STOP

## IZ – Current Clamp Measurement

3



4 Connect the DUT



5 Set parameters

Measuring Parameter	Meaning
Measurement Type	
V – COM	A AC for permanently connected DUTs
V – COM (with mains)	A AC, with mains to test socket
Polarity – only with measurement type direct, differential and AT3 adapter	
	Normal
	Reversed
Selection of polarity for mains voltage to the test socket	

- Set the clamp factor (Za. factor):
  - At the current clamp sensor
  - At the test instrument

Start test



Save measured values to buffer memory



Stop test



## 12.18 2-POLE MEASUREMENT WITH TEST PROBES P1 AND P2

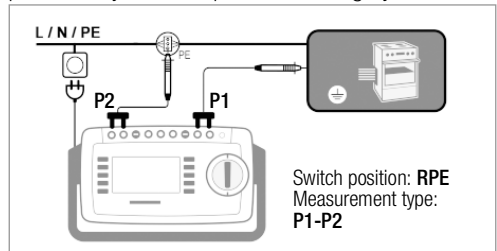
Only for instruments with feature H01 (e.g. SECUTEST ST PRO and SECULIFE ST BASE 25)

If the device under test isn't equipped with a country-specific mains plug which fits into the test socket at the test instrument, or if a permanently installed DUT is involved, the second test probe, in combination with the first test probe, permits 2-pole measurement (dual-lead measurement) of RPE, RINS, IPE and IT (alternative method).

Measurements with test probe 1 to test probe 2 (P1 – P2) are electrically isolated from the mains. There's no voltage at the test socket.

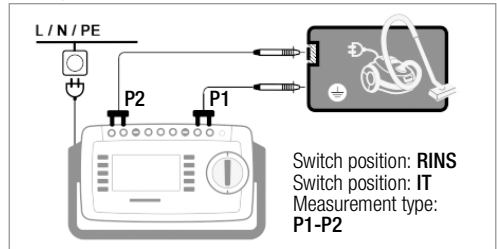
### Connection Example for Measuring RPE

Measuring protective conductor resistance RPE for permanently installed, protection category I DUTs



### Connection Example for Measuring RINS or IT

Measuring insulation resistance RINS or touch current IT for protection class I DUTs





## 12.19 MEASUREMENT WITH CURRENT CLAMP SENSOR FOR PERMANENTLY INSTALLED PC I DUTS

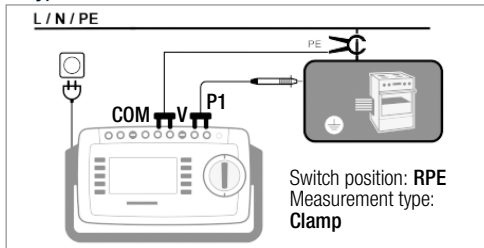
Only for instruments with feature I01 (e.g. SECUTEST ST PRO and SECULIFE ST BASE 25)

Test Instrument	Clamp		Test Instrument
Transformation Ratio Parameter	Transformation Ratio (Switch *)	Measuring Range	Display Range with Clamp
1 mV : 1 mA	<b>WZ12C</b>		
	1 mV : 1 mA	1 mA ... 15 A	0 mA ... 300 A

\* Only with WZ12C

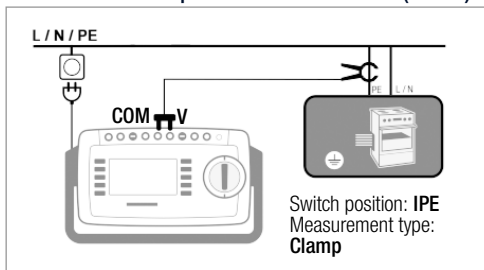
Measurement of device leakage current by closing the clamp around the **L and N** conductors in the mains cable.

### Connection Example: RPE Measurement (WZ12C only)



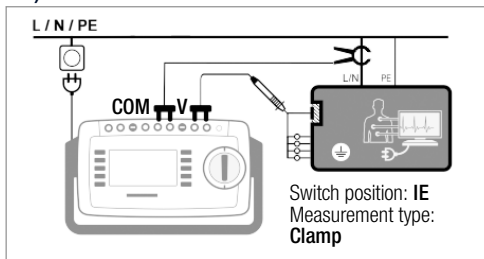
Measurement of test current by closing the clamp around **PE** in the mains. This measurement type can only be selected if test current is set to 10 A AC.

### Connection Example: IPE Measurement (direct)



Measurement of test current by closing the clamp around **PE** in the mains cable.

### Connection Example: IE Measurement (Differential)



## 12.20 MEASUREMENTS WITH TEST ADAPTER

Test with Adapter	EL1	VL2E	AT3-IIIE <sup>2)</sup>	AT16DI AT32DI	CEE adapter
<b>Connectors for the DUT</b>					
Non-heating devices, 1P+N+PE 16 A	—	✓	✓	—	—
Earthing contact, 1P+N+ PE 16 A	—	✓	—	—	—
CEE, 1P+N+PE 16 A	—	✓	✓	—	✓
CEE, 3P+N+PE 16 A	—	✓	✓	✓ / —	✓
CEE, 3P+N+PE 32 A	—	✓	✓	— / ✓	✓
5 x 4 mm sockets	—	—	—	—	✓
<b>Connectors for the Test Instrument</b>					
Earthing contact, 1P+N+ PE 16 A	—	—	✓	✓	—
Socket for test probe	—	✓	✓	—	—
Plug for V-COM <sup>1)</sup>	—	—	✓	—	—
<b>Active Test</b>					
<b>Protective conductor current IPE</b>					
– Direct method	—	—	✓	✓	—
– Differential current	—	—	✓ <sup>1)</sup>	✓	—
<b>Device leakage current IE</b>					
– Direct method	—	—	✓	✓	—
– Differential current	—	—	✓ <sup>1)</sup>	—	—
Touch current <b>T</b>	—	—	✓	✓	—
<b>Passive Test</b>					
Pro. con. resistance <b>RPE</b>	✓	✓	✓	✓	✓
Insulation resistance <b>RINS</b>	✓	✓	✓	✓	✓
High voltage test <b>UHV</b> <sup>3)</sup> (max. 2.25 kV)	—	—	✓	✓	✓
Protective conductor current <b>IPE</b> (equivalent leakage current method)	—	✓	✓	✓	✓
<b>Extension cords:</b> the following additional test steps are executed in switch position <b>EL1</b> depending on the selected test type:					
Single-phase (3-pole)	✓	✓	✓	—	—
3-phase (5-pole)	—	✓	✓	—	—
Wire short-circuit	✓	✓	✓	—	—
Wire break	✓	✓	✓	—	—
Reversed wires	—	✓	✓	—	—

<sup>1)</sup> Differential current method only with test instruments including feature IO1 (e.g. SECUTEST ST PRO)

<sup>2)</sup> Alternatively AT3-IIS or AT3-II S32 for IPE and IE

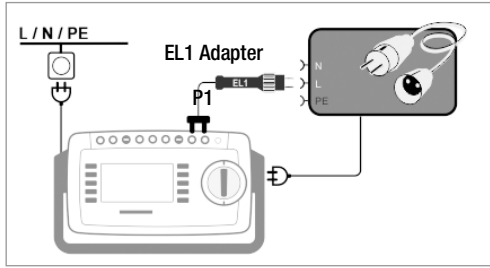
<sup>3)</sup> Observe maximum test voltage (UGen) (see operating instructions for the adapter).



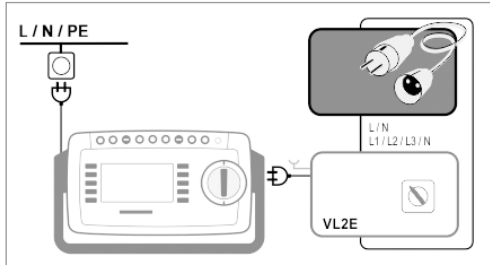
### Note

Please read and observe the operating instructions for the test adapters regarding correct connection of the test adapter and the DUT, as well as peculiarities involved in the test procedure.

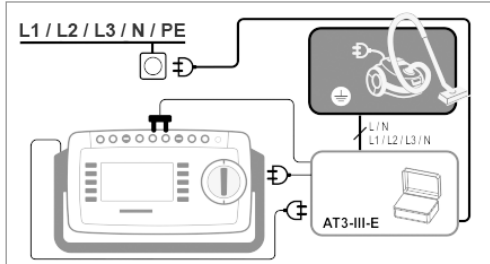
### Connection Example with EL1



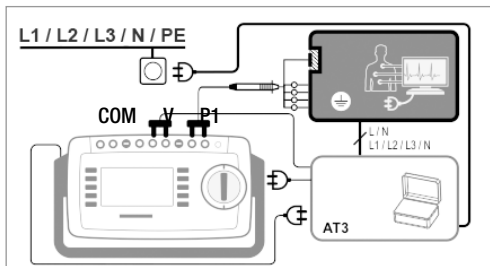
### Connection Example with VL2E



### Connection Example for Protective Earth Current Measurement IPE <sup>1)</sup> with AT3-III-E



### Connection Example for Measurement of Device Leakage Current IG <sup>1)</sup> (residual current method) with AT3



<sup>1)</sup> Only with feature I01 (e.g. SECUTEST ST PRO or SECULIFE ST BASE 25)

## 13 TEST SEQUENCES (AUTOMATIC TEST SEQUENCES)

A test sequence is a series of semi-automatic tests or test steps. If the same sequence of individual tests will be run frequently (one after the other with subsequent report generation), for example as specified in the standards, it's advisable to make use of such test sequences.

The test instrument includes two types of test sequences:

- **Integrated Test Sequences**

Available ex works or after enabling at the test instrument. Cannot be changed (test parameters are configurable).



### Note

The integrated test sequences do not include all of the tests stipulated by the product standard which are required for type testing! They're restricted to the tests which are required as a rule after repair or during maintenance work and for occupational health and safety measures, as well as for quality assurance in production.

- **User-Defined Test Sequences**

Created individually by the user with IZYTRONIQ software and transferred to the test instrument. (This function is available depending on test instrument model or features.)



### Note

The user selects standard designations (national designations) for the integrated test sequences during initial configuration. If the designations need to be changed, follow the instructions in the operating instructions. Please note that designations cannot be changed retroactively (standard designations in previously saved tests cannot be changed).



### Note

An insulation test can also be added to your instrument sequence as a control type test step in IZYTRONIQ. This type of step determines whether or not a DUT which is (directly) connected to the test socket is insulated. The DUT must be set up in an insulated manner in order to correctly determine protective conductor or device leakage current with the direct measurement type. The test instrument automatically performs this type of test at the beginning of the sequence if test steps of this sort (protective conductor or device leakage current with the "Direct" measurement type) are included in the user-defined sequence – in such cases, it's not necessary to add this test step to the sequence manually!

All test sequences are run in orange rotary switch positions A1 through A9. Each of the rotary switch positions is preconfigured at the factory with integrated test sequences, but they can be adapted to suit your needs, i.e. integrated and user-defined test sequences can be subsequently assigned to the various rotary switch positions as required.

The measurements included in the test sequences are evaluated – either automatically by the test instrument (in the case of limit values) or manually by the user (e.g. visual inspection). Automatic evaluation by the test instrument is based on the worst-case and, depending on settings, in consideration of measuring uncertainty. Results:

- **Green:** the momentary measured value lies within the limits specified in the standard.
- **Orange:** further entries are required after the test step (e.g. cable length), which are decisive as to whether or not the test has been passed.
- **Red:** limit value violation. The measured value does not comply with the specifications stipulated in the standard.



#### Note

Even if the DUT fails just one single measurement, the test sequence is aborted and testing in accordance with the selected standard is failed.



#### Note

With the help of the SECUTEST DB COMFORT feature (Z853S or feature KD01), test sequences can be modified such that they're not interrupted in the event of a limit value violation. Amongst other things, this is helpful for troubleshooting during repair. Please refer to the operating instructions for further information.

### 13.1 MEASURING PROCEDURE AND STORAGE

1. Connect the DUT.
2. Select the desired test sequence with the rotary switch (A1 ... A9).  
↳ The test instrument initializes connection type recognition.
3. Start the test sequence by pressing the **START/STOP** key. 
4. The measured value recording icon shown at the right appears. Each time this key is pressed, the measuring or evaluation procedure is restarted (see case B ⇨ 62). 
5. Proceed to the next measurement by pressing the key shown at the right.
6. When the test sequence has been completed, "Sequence Finished" is displayed. At the end of the test sequence, a list of results can be generated for the individual test steps. 
7. If you want to view details such as the settings for the individual test steps, select the desired measurement with the cursor and press the **+ magnifying glass key**.
8. The display is returned to the list of test steps by pressing the **magnifying glass – key**. 
9. Save the results of a successful test sequence by pressing the **Save** key. The following message appears: "No test object selected!". 
10. Press the **ID** key. You now have the option of entering a test object ID number. If you enter an ID here which is **not yet** included in the database, a prompt appears asking you if you want to enter a new test object. ↳ The test object can then be created: 
11. Select either device or (medical) ME device.
12. (De)activate the QEDIT function (quick edit – with SECUTEST DB COMFORT only – Z853S or feature KD01). If QEDIT is activated, you can fill in additional fields for the test object in the next step.
13. Confirm with the green checkmark.
14. If you activated the QEDIT function in the previous step, you can now fill in all the test object's fields.
15. Confirm with the green checkmark. ↳ An overview of the database appears along with the newly created test object.
16. Press the **save icon** (floppy disk) in order to store the measurement results. A message appears indicating that the data have been successfully saved and the display is switched to the measuring view. 



#### Note

The storage process can be aborted by pressing the **ESC** key. The display is returned to the memory menu. All measured values can be deleted by once again pressing the **ESC** key.



#### Note

You can send the test results to a PC on which IZYTRONIQ software is running. This function is known as “push-print” and can be implemented via USB or Bluetooth®. Database expansion SECUTEST DB COMFORT (Z853S or feature KD01) and, if applicable, feature M01 (Bluetooth®) are required to this end. Complete information regarding push-print and a description of the application can be found in IZYTRONIQ online help.

### Evaluation Procedure

During a measurement procedure, evaluation is performed automatically for some test steps within a test sequence, while for others it must be performed manually:

#### Case A – automatic triggering of evaluation:

Evaluation (with a duration of, for example, 5 seconds) is started automatically as soon as the measured value has stabilized. The worst value which occurs during this duration is saved, and automatic switching to the next test step ensues.

#### Case B – manual triggering of evaluation:

Evaluation is started after pressing the measurement value recording icon (display: 0). After a specified period of time has elapsed, the worst value is saved and displayed to the right of wc: (worst case), and the number 1 is displayed in the measurement value recording icon indicating that the first measured value has been saved. Pressing the measured value recording icon again restarts the evaluation procedure. If the worst value is worse than the value obtained for the previous measurement, the new value is used. However, if this value is better than the previous worst value, the original value remains in the display. Depending on whether you want to delete the last value saved to buffer memory or all values, press the icon an appropriate number of times.



Switching to the next test is accomplished with the help of the adjacent icon.

## ATTENTION

### Danger of Electric Arcs and Damage to Surfaces

(Feature G01 or G02 only)

High test current is applied during test steps of sequence parameter RPE IP with 10 or 25 A test current. It's activated as soon as the evaluation period starts and remains active until the evaluation period has ended.

Maintain contact between the probe and the DUT for the entire duration of the evaluation!

## 13.2 EXAMPLE OF AN INTEGRATED TEST SEQUENCE

### 1 Select test sequence



A3

### 2 Initial page



\* On devices with SECUTEST DB COMFORT and touchscreen, the test sequence can be changed immediately after tapping the area highlighted in color.

### 3 Set sequence parameters

Individual test steps can be configured with the sequence parameters (see operating instructions).

### 4 Set classification parameters

Measuring Parameter	Meaning
Standard	Test standard / extension cord
Protection category * Ⓐ	PC I/PC II/PC III
Connection type * ⓑ	Test socket / permanent / adapter
Measurement type (MA) * Ⓒ	Active or passive DUT (on test: on = passive, off = active)
Detected classification	No auto-detection: All classification parameters such as connection, protection category and measurement type must be entered manually. Always accept: All classification parameters activated under "Auto-detection of" are detected automatically and accepted.

Measuring Parameter	Meaning
Auto-detection of	Any desired combinations for automatic detection of: – Connection ⓑ – Protection category (PC) Ⓐ – Measurement type (MT) Ⓒ

\*If the settings of the classification parameters are detected automatically, they're identified by an orange border (in this case ⓑ). However, they have to be entered manually if they're not automatically detected, or if they're detected incorrectly.

### 5 Connect the DUT

- Connect the DUT to the test instrument in accordance with the selected test sequence.
  - Test socket
  - Permanent connection
  - Adapter

Connection depends on the type of DUT.

For testing extension cords in accordance with standards: connection to the test socket via the following adapter:

- EL1 for single-phase extension cords
- VL2E/AT3-IIIIE for single and 3-phase extension cords

### 6 Check connection and start test sequence

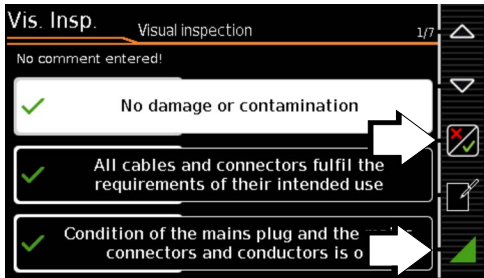
The following checks are run automatically before the test sequence is started:




- Probe check P1 (determines whether or not test probe P1 is connected and fuse link P1 is intact)
- Insulation test (whether or not the DUT is set up in a well-insulated fashion)
- On test and short-circuit test  
In order to be able to detect a short-circuit at the DUT, testing is conducted between L and N, as well as LN and PE.

If you've set the "Detected classification" parameter for the respective test sequence to "Always accept" and the "Auto-detection of" parameter to "Connection and PC" (before triggering **Start**), the following additional checks will be run before the test sequence is started:

- Protection category detection for DUTs with protective conductor
- Connection test: Checks whether the DUT is connected to the test socket. In the case of protection class I: whether or not the two protective conductor terminals are short-circuited.

## 7 Evaluate visual inspection manually



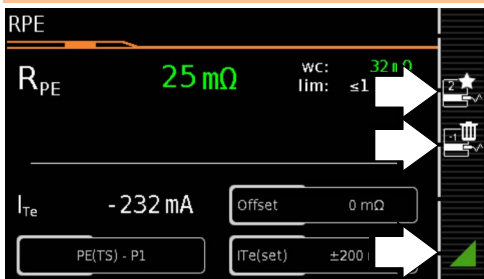
-  Visual inspection passed
-  Visual inspection not passed (test sequence is ended, test failed)
-  Resume test sequence






### Note

If the plug is pulled out of the test socket during the test sequence, the test sequence is aborted immediately.

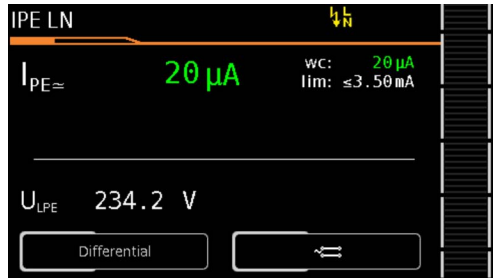
## 8 Test step – start evaluation



**Green measured value:** complies with standard 

-  Record measuring point
-  Delete last measuring point
-  Resume test sequence

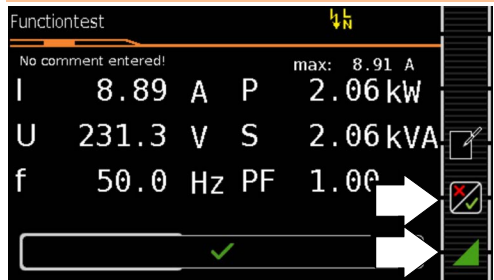
## 9 Test step – automatic evaluation







The measured value is ascertained automatically within a specified period of time. The test sequence is then automatically resumed.

**Green measured value:** complies with standard 

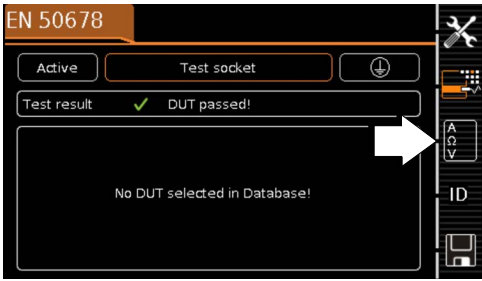
## 10 Evaluate function test manually



-  Function test passed
-  Function test not passed (test sequence is ended, test failed)
-  Resume test sequence
-  Remove DUT from service (per instructions in the test sequence).

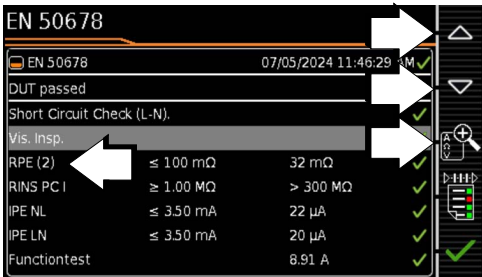


## 11 Optional: display results



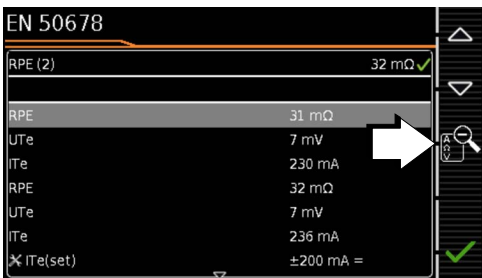
(Display of the memory screen depends on the parameter setting in the **SETUP** switch position: Setup 1/3 > Autom. measur. > At End of Sequence > **Memory Screen**. When set to **events list**, this is displayed immediately.)


Show details:



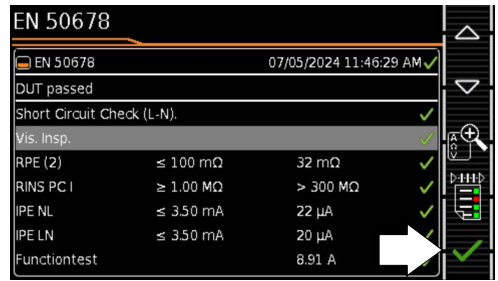
(Consideration of measuring error depends on the parameter setting in the **SETUP** switch position: **Setup 1/3 > Autom. measur. > Error Considered. > Yes**)


Hide details:



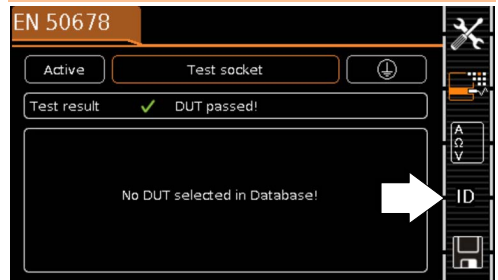
 Return to the list of test steps

Confirm results:



 Return to the memory screen.


## 13 Save results



- Press the **ID** key.  
You now have the option of entering a test object ID number. If you enter an ID here which is **not yet** included in the database, a prompt appears asking you if you want to enter a new test object.  
The ID dialog appears.

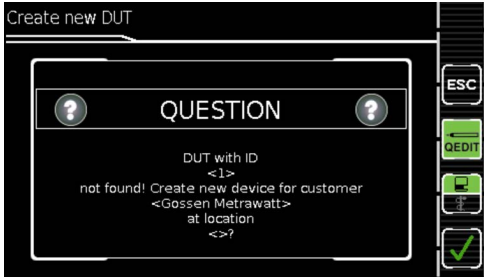


### Note

Since no test object is selected, a corresponding note is displayed when the save key  is pressed.

- Enter an ID that hasn't yet been used and confirm your selection.

The “Create test object” prompt appears:



#### QEDIT On/Off

(QuickEdit function, only with SECUTEST DB COMFORT – Z853S or feature KD01)

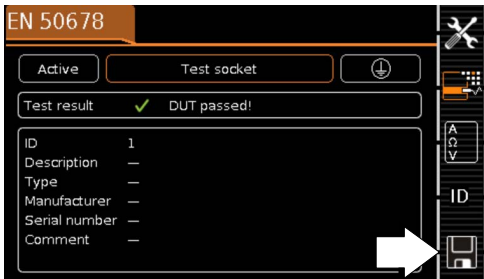
If QEDIT is activated, you can fill in all of the test object's fields as a further step. Refer to the operating instructions for further information.



Toggle between device and medical device.



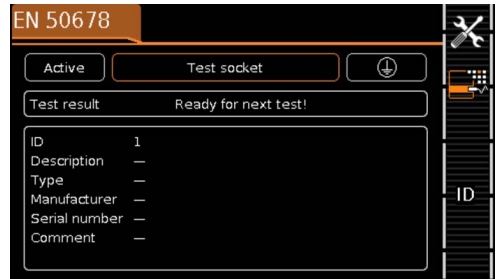
Return to results screen.



- Save the results by pressing the save key.



The measurement is saved and the test instrument is ready for the next measurement:



#### Note

1 You can send the test results to a PC on which IZYTRONIQ software is running. This function is known as “push-print” and can be implemented via USB or Bluetooth®.

Database expansion SECUTEST DB COMFORT (Z853S or feature KD01) and, if applicable, feature M01 (Bluetooth®) are required to this end.

Complete information regarding push-print and a description of the application can be found in IZYTRONIQ online help.

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## 14 REPORTS

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A report can be read out showing the results of individual measurements or test sequences stored to the internal database.

Various output formats can be selected:

- Print directly at the test instrument with a printer (thermal printer Z721S).
- Print as an HTML file to a USB flash drive connected to the test instrument
- by transferring the stored measurement data to IZYTRONIQ software on the PC and printing it out there as a report.

Please refer to the operating instructions for complete information.

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## 15 TEST DATA MANAGEMENT – IZYTRONIQ SOFTWARE

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IZYTRONIQ software facilitates test organization and the management of test data from a broad range of test equipment.

It also provides extended functions such as remote control in connection with the respective test instrument – support for extended functions depends on the test instrument and its order features or enabled extensions (activations).



### Note

IZYTRONIQ test software may be included in the scope of delivery, for example with standard models and test instrument sets (see data sheet).

If this is not the case or if you would like to take advantage of a variant with a larger scope of functions, you can purchase IZYTRONIQ separately. Detailed information is available at:

<https://www.izytron.com/>



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## 16 CONTACT, SUPPORT AND SERVICE

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Gossen Metrawatt GmbH can be contacted directly and conveniently – we have a single number for everything! Whether you require support or training, or have an individual inquiry, we can answer all of your questions here:

+49 911 8602-0

Monday to Thursday:

8 a.m. to 4 p.m.

Friday:

8 a.m. to 2 p.m.

Or contact us by e-mail at:

[info@gossenmetrawatt.com](mailto:info@gossenmetrawatt.com)

Do you prefer support by e-mail?

Measuring and Test Technology: [support@gossenmetrawatt.com](mailto:support@gossenmetrawatt.com)

Industrial Measuring Technology: [support.industrie@gossenmetrawatt.com](mailto:support.industrie@gossenmetrawatt.com)

Enquiries concerning training and seminars can also be submitted by e-mail and online:

[training@gossenmetrawatt.com](mailto:training@gossenmetrawatt.com)

<https://www.gossenmetrawatt.de/en/knowledge/webinars/>



Please contact GMC-I Service GmbH for repairs, replacement parts and calibration <sup>1)</sup>:

+49 911 817718-0

[service@gossenmetrawatt.com](mailto:service@gossenmetrawatt.com)

<https://www.gmci-service.com/en/>

Beuthener Str. 41

90471 Nürnberg

Germany



<sup>1)</sup> DAkkS calibration laboratory per DIN EN ISO/IEC 17025

accredited by the Deutsche Akkreditierungsstelle GmbH under reference number D-K-15080-01-01

# 17 CERTIFICATIONS

## 17.1 CE DECLARATION

The instrument fulfills all requirements of applicable EU directives and national regulations. We confirm this with the CE mark.

<b>Gossen Metrawatt GmbH</b>	<b>Begleitende Formulare zum PEP EU-Konformitätserklärung / EU Declaration of Conformity</b>	<b>Form E0F34</b>
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Hersteller / Manufacturer: Gossen Metrawatt GmbH  
Anschrift / Address: Südwestpark 15, 90449 Nürnberg  
Produktbezeichnung/ Prüfgerät für elektrische Sicherheit (Gerätetester)  
Product name: Safety Tester (Device Tester)  
Typ / Type: SECUTEST ST | BASE (10) | PRO | PRIME , SECULIFE ST BASE (25)  
Bestell-Nr / Order No: M7050, M707A/B/C, M708B/C/E/D  
Zubehör / Accessories: Z732A, Z745D/H/N/O/R/G, Z750A/B, Z751A/E , Z721E , Z747A

Der oben beschriebene Gegenstand der Erklärung\* erfüllt die einschlägigen Harmonisierungsvorschriften der Union: / The object of the declaration\*\* described above is in conformity with the relevant Union harmonisation legislation:

<u>2014/53/EU</u>	<u>Funkanlagenrichtlinie</u>	<u>Radio Equipment Directive (RED)</u>
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EN/Norm/Standard:  
EN 301 489-1 V2.2.3 : 2019 , EN 301 489-17 V3.2.4 : 2020 , EN 300 328 V2.2.2 : 2019

Anforderungen an die Sicherheit gemäß 2014/35/EU (Niederspannungsrichtlinie) /  
Safety requirements according to 2014/35/EU (Low Voltage Directive)

EN/Norm/Standard:  
EN 61010-1 : 2010 + A1 : 2019 , EN IEC 61010-2-030 : 2021 + A11 : 2021, EN 61010-031 : 2015 ,  
EN IEC 61010-2-032 : 2021 + A11 : 2021

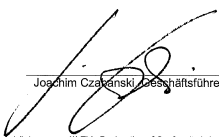
Anforderungen an die elektromagnetische Verträglichkeit gemäß 2014/30/EU (EMV Richtlinie) /  
Requirements for electromagnetic compatibility according to 2014/30/EU (EMC Directive)

EN/Norm/Standard:  
EN IEC 61326-1 : 2021

<u>2011/65/EU</u>	<u>RoHS - Richtlinie</u>	<u>RoHS Directive</u>
<u>(EU) 2015/863</u>	<u>Deligierte Richtlinie</u>	<u>Deligate Directive</u>

EN/Norm/Standard:  
EN IEC 63000 : 2018

Nürnberg, 01.07.2024  
Ort, Datum / Place, Date.

  
Joachim Czajkowski, Geschäftsführer / Managing Director

\*) Die alleinige Verantwortung für die Ausstellung dieser Konformitätserklärung trägt der Hersteller. Sie beinhaltet jedoch keine Zusicherung von Eigenschaften. Die Sicherheitseinweise der mitgelieferten Produktdokumentationen sind zu beachten.

\*\*\*) This Declaration of Conformity is issued under the sole responsibility of the manufacturer but does not include a property assurance. The safety notes given in the product documentation which are part of the supply, must be observed.

Datei: 24-02-M7050-CE-Entwurf	Ausgabe: 15.01.2021	Erstellt: Eckl	Freigabe: Weiß
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Proper disposal makes an important contribution to the protection of our environment and the conservation of natural resources.

### ATTENTION

#### Environmental Damage

Improper disposal results in environmental damage.

- Follow the instructions concerning return and disposal included in this section.

The following comments refer specifically to the legal situation in the Federal Republic of Germany. Owners or end users who are subject to other regulations must comply with the respectively applicable local requirements and implement them correctly on site. Further information can be obtained, for example, from the responsible authorities or local distributors.

#### Waste Electrical Equipment, Electrical or Electronic Accessories and Waste Batteries (including Rechargeable Batteries)

Electrical equipment and batteries (including rechargeable batteries) contain valuable raw materials that can be recycled, as well as hazardous substances which can cause serious harm to human health and the environment, and they must be recycled and disposed of correctly.



The symbol at the left depicting a crossed-out garbage can on wheels refers to the legal obligation of the owner or end user (German electrical and electronic equipment act ElektroG and German battery act BattG) not to dispose of used electrical equipment and batteries with unsorted municipal waste ("household trash"). Waste batteries must be removed from the old device (where possible) without destroying them and the old device and the waste batteries must be disposed of separately. The battery type and its chemical composition are indicated on the battery's labelling. If the abbreviations "Pb" for lead, "Cd" for cadmium or "Hg" for mercury are included, the battery exceeds the limit value for the respective metal.

Please observe the owner's or end user's responsibility with regard to deleting personal data, as well as any other sensitive data, from old devices before disposal.

Old devices, electrical or electronic accessories and waste batteries (including rechargeable batteries) used in Germany can be returned free of charge to Gossen Metrawatt GmbH or the service provider responsible for their disposal in compliance with applicable regulations, in particular laws concerning packaging and hazardous goods. Waste batteries must be returned in the discharged state or with appropriate precautions against short circuiting. Further information regarding returns can be found on our website.

#### Packaging Materials

We recommend retaining the original packaging materials for the case that you might require servicing or calibration in the future.



### WARNING

#### Danger of Asphyxiation Resulting from Foils and Other Packaging Materials

Children and other vulnerable persons may suffocate if they wrap themselves in packaging materials, or their components or foils, or if they pull them over their heads or swallow them.

- Keep packaging materials, as well as their components and foils, out of the reach of babies, children and other vulnerable persons.

In accordance with German packaging law (VerpackG), the user is obligated to correctly dispose of packaging and its components separately, and not together with unsorted municipal waste ("household trash").

Packaging which is not subject to so-called system participation is returned to the appointed service provider. Further information regarding returns can be found on our website.





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owners.

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