

# AT3-III E Safety Tester

## for Tests in Accordance with DIN VDE 0701/0702/0751 and Connection to SECUTEST® SII/III Test Instruments

3-349-156-03  
5/9.06

- **Connection of single and 3-phase devices and extension cables** without reversing polarity at devices under test in operating modes with and without mains power via the test sockets and the test plug
- **Extensive equipment** with plug connectors up to CEE 32
- **Function test with nominal current of up to 16/20 A**
- **Displays:** residual current shutdown LED red  
mains operation Lamps L1/L2/L3 yellow
- **Mains connection 230/400 V 50 Hz**  
via mains plug CEE 3P+N+PE 16 A mains outlet
- **Safety provided by electronic monitoring of residual current** with DUT shutdown if residual current exceeds 20 mA and optical error indication.  
Trip control with "residual current tripping" test key.
- **Prevention of short-circuits** and blown mains fuses during testing of defective single and 3-phase extension cables.
- **Compact and robust aluminum frame case, provided with a lock**



### Additional Features

- Tests in accordance with the menu-controlled test sequences of the SECUTEST® testers, fully automatic or manual.
- Transmission of test results to the test instruments and evaluation with the testers of the SECUTEST® series.
- Adapter function EL1 (accessory for SECUTEST testers) for testing single phase extension cables is integrated as a module in the AT3-III.
- AT3-63 test adapter as an accessory for the connection of 63 A devices and extension cables for testing devices during mains operation at up to 20 A
- Extensions: power consumption > 16 A upon request

### Applications

The safety tester is used for measuring and testing single and 3-phase electrical devices and extension cables in combination with SECUTEST® SII, SIII and M701x test instruments. These tests must be performed by a qualified electrician with an appropriate test instrument after repair or modification in accordance with DIN VDE 0701, and are also required for periodic testing per DIN VDE 0702.

Depending upon the type of device under test and how it is used, testing of protective conductor resistance, insulation resistance and equivalent leakage current, as well as residual and contact current is required by these regulations.

Testing per EN 60601-1 is only possible to a certain extent.

A software upgrade may be required for operation of older SECUTEST® SII/SIII series instruments (see "SE-701 upgrade" under Order Information).

The following quantities are tested by the safety tester in combination with SECUTEST® SII, SIII and M701x test instruments:

- Protective conductor resistance
- Insulation resistance
- Dielectric strength (HV test up to 1.5 kV \*)
- Equivalent leakage current
- Residual current
- Contact current
- Protective conductor current (AC and DC are tested separately \*)
- Earth leakage current
- For extension cables:
  - Short circuit
  - Conductor continuity
  - And for 3-phase extension cables:  
Possible conductor reversal at L1, L2 and L3 for phase sequence detection

\* If the utilized SECUTEST® is capable of performing this measurement

### Safe, Efficient Work

Operation is simple and safe. The safety tester is connected to a 3-phase 16 A mains outlet, and to the respective test instrument. Testing is performed without reversing polarity at the device under test, either automatically or manually, and is controlled by the test sequence of the utilized test instrument. Safety shutdown occurs if the factory preset residual current value is exceeded.

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Applicable Regulations and Standards in accordance with which the safety tester has been manufactured and tested

IEC 61010-1/EN 61010-1/ VDE 0411-1	Safety requirements for electrical equipment for measurement, control and laboratory use
EN 60529 VDE 0470, Part 1	Test instruments and test procedures Protection provided by enclosures (IP code)
IEC 61326 / EN 61326	Electromagnetic compatibility (EMC)

### Regulations and Standards for the Use of Safety Testers

DIN VDE 0701-1: 2000	Repair, modification and testing of electrical devices – General requirements
DIN VDE 0702: 2004	Periodic testing of electrical devices
DIN VDE 0751: 2001	Repair, modification and testing of electrical medical devices, general requirements
BGV A3 (VBG 4)	Trade association accident prevention regulations

### Characteristic Values

#### Equivalent leakage current measuring function

Measuring range	0.00 ... 21.00 mA
Intrinsic error	$\pm(5\% \text{ m.v.} + 5 \text{ d}) > 10 \text{ d}$
Measuring range	20.1 ... 120.0 mA
Intrinsic error	$\pm(15\% \text{ m.v.} + 5 \text{ d}) > 10 \text{ d}$

#### Residual current measuring function

Measuring range	0 ... 20 mA
Ratio	1 V / 10 mA
Intrinsic error	$\pm(5\% \text{ m.v.} + 0.05 \text{ mA})$

#### Nominal ranges of use

Line voltage	
L1/L2/L3/N	207 ... 253 V AC
Frequency	49 ... 51 Hz
Temperature	0 °C ... +40 °C
Line voltage wave shape	sine

#### Reference conditions

Ambient temperature	+23 °C $\pm$ 2 K
Relative humidity	50% $\pm$ 5%
Line voltage	230 V/400 V $\pm$ 10%
Measured quantity frequency	50 Hz $\pm$ 0.2%

#### Ambient Conditions

Operation	-10 ... +40 °C
Storage	-25 ... +60 °C
Relative humidity	max. 75%, no condensation allowed
Elevation	to 2000 m

### Power Supply

Line nominal voltage 3~230/400 V/50 Hz/CAT II  
Connection only permissible with overload protection device  
 $I_n = 16 \text{ A}$   $I_2 \leq 1.45 I_n$

### Electrical Safety

Standard DIN VDE 0404-1/-2:2002-5  
IEC/EN 61010-1:2001

Contamination degree	2
Safety class	I
4-pole residual current shutdown at	approx. 18 mA
Fuse protection	F315mA L 250V 5 x 20 T32mA L 250 V DIN EN 60127-2

### Mechanical Design

Protection, case	IP 40 per DIN VDE 0470, part 1
Terminals	IP 20
Dimensions	405 x 300 x 220 mm (with lid)
Weight	approx. 6.7 kg

### Standard Equipment

- 1 test case
- 1 operating instructions

### Order Information

Description	Type	Article Number
Safety tester	AT3-III E	Z745S
Base frame with automatic test sequence, interface, user guide in German, earthing contact plug and socket, probe lead with test probe, slip-on alligator clip, test report, operating instructions. See data sheet for features and extras.	SECUTEST®SII *	M7030
Tester for DIN VDE 0701, 0702 and 0751 with automatic test sequence See data sheet for features and extras.	SECUTEST®SIII *	M7010
Software upgrade for new standard: DIN VDE 0701-1:2000-09, for older SII and SIII series devices (test instrument prerequisite: part number or article number = M7xxx and Windows® compatible PC)	SE-701-upgrade	Z713C

\* Data sheet available

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