Leakage Current Tester
single-phase / not floating

for stand-alone operation or automatic test systems

Product Group

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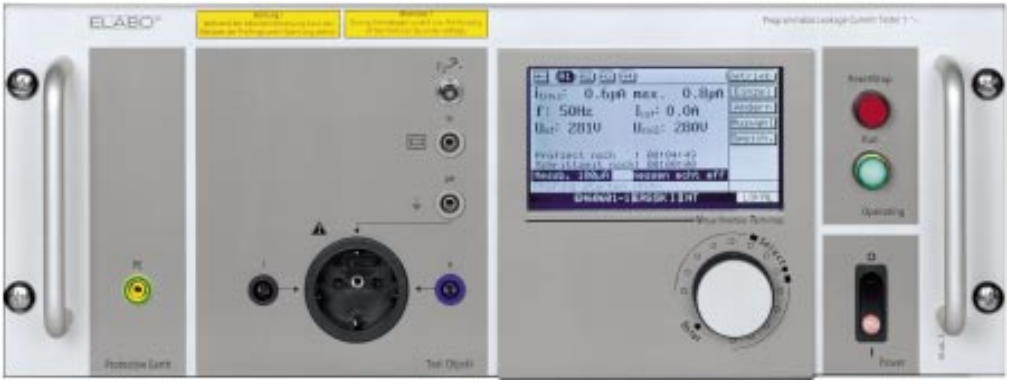

2GA27 **92-4A**

The single-phase measuring unit 92-4A enables norm concuring measurings and evaluations of leakage currents on electrical appliances.
The device can be used as an independent measuring system or as a component in semi or fully automatic test systems.
The testing instrument consists of a basic equipment plus required measuring circuits for the desired testing norms. ELABO offers several basic equipment units which are completed by measuring circuits (see next page). Due to the modular construction of the equipment the expansion of up to three norm specific measuring circuits is possible without problems.
Furthermore, the integration of a second optional measuring system is prepared.

Following norms[1] can be realized with the measuring instrument:

•	VDE 0711	EN 60598-1	Light fixtures
•	VDE 0805	EN 60950	Communication
•	VDE 0700	EN 60335-1	Household appliances
•	VDE 0750	EN 60601	Medicine technology
•	VDE 0411	EN 61010	Measuring technique, control engineering
•	VDE 0860	EN 60065	Audio, video and similar electrical appliances

[1] Please order additionally the required measuring circuits and expansion modules.

There are tests with manual or automatic sequence of operations possible. For the storage of test parameter it is possible to create parameter blocks. Up to 200 program positions are available for the storage of different parameter blocks.
For the protection from unauthorized use or change of testing or equipment parameters a three-stage password protection is integrated.
The **power supply of the test** item can be carried out through the testing instrument itself (internal - not floating) or through an externally connected supply. The setting of the test voltage can be made by a variable-ratio transformer located on the front panel or automatically by a control unit (depending on the basic unit).
The **connection of the test item** is carried out via the plug-in connections at the front panel of the device. For semi or fully automatic test systems the connection of the item under test is normally carried out through the terminals located on the rear side of the unit.
The **operation** of the device and the data and limiting value inputs are made menu-driven through the rotary encoder located at the front panel.
The **remote control** of the testing instrument is possible by means of an interface (CAN bus or RS232 interface) via PC. ELABO offers a special software for the control, management and evaluation of the measurings (ELABO Cat. No. 95-9 B Z92 4A).
The operating devices and the display at the front panel are not active during control via interface (exception the „Reset/Stop“ button and the OFF-keyswitch). The indication of the measurements is then exclusively be carried out at the PC screen.
For the printing of **test protocols** a serial printer can be connected to the testing device. At control via the RS 232 interface the protocol printer has to be attached to the PC.
For your individual requests ELABO develops and produces custom designed solutions.

- 19“ / 4 HU design
- for individual and system application
- single step testing and automatic test run by means of test schedules
- modular extendibility through norm-specific meauring circuits
- setting of test voltage manually or automatically by variable transformer
- expandable for medicine technology
- large graphic capable LCD
- display menu - switchable to national language
- one-hand operation by rotary encoder with pressure point
- password protection in three levels
- RS232 - interface for control via PC-software 95-9B Z92-4A or protocol printout
- CAN-interface (optional feature)
- external feed in of test voltage possible
- comfortable PC-software package 95-9B Z92-4A for
  • controlling the test run
  • management of test schedules, measurements and statistics

The expansion module **„Medicine“** allows measurings of
- patient leakage current for equipment of type BF and CF, - housing and patient leak. current with signal part
- patient auxiliary current, - measurings of currents between not with the PE conductor connected, conductive housing parts in a separate testing step.

On request are available custom-designed units, norm-specific measuring circuits (UL, CSA etc.), equipment with higher testing currents etc.

Equipment variant	2GA27 **92-4A**	2GA27 **92-4A Z01**
Voltage settings	manually	automatically
TECHNICAL DATA		
Test voltage internal	Mains supply .. 280 V - not floating	
Test voltage external	50 ... 280 V	
Current int./ external	max. 15 A / max. 15 A	
Frequency int./ external	50 Hz / 50 ... 400 Hz	
Leakage current range	0 ... 100 µA / 0 ... 1 mA / 0 ... 10 mA	
Measurement error at 49 - 61 Hz:	TRMS, MAD and alternating componet : 1.0% of rdg +10 Digit direct component, peak measurement and measurement to EN 60990 Illustr. 3 : 2.0% of rdg +30 Digit For all not medical measuring circuits the measuring error is min. 3 µA.	
Measurement method:	A1 / A2	
Ways of measurement:	RMS value, MAD, peak value, alternating component ,direct component	
Interfaces	RS232, CAN (optional feature)	
Mains supply	230 V +/- 10% / 49 - 61 Hz	
Weight	appr. 31 kg	
Dimensions	19" / 4 HU depth 360 mm	

ORDERING DATA	
Leakage Current Tester basic unit man. setting of test voltage, 19" 4 HU	2GA27 **92-4A**
Leakage Current Tester basic unit autm. setting of test voltage , 19" / 4 HU	2GA27 **92-4A Z01**
EXPANSION MODULES	
Expansion module "Medicine"	2GA27 **92-4R Z11**
MEASUREMENT CIRCUITS	
VDE 0711 / EN 60598-1	2GA27 **92-4R Z02**
VDE 0750 / EN 60601	2GA27 **92-4R Z03**
VDE 0805 / EN 60950	2GA27 **92-4R Z04**
VDE 0860 / EN 60065	2GA27 **92-4R Z05**
VDE 0411 / EN 61010	2GA27 **92-4R Z06**
VDE 0700 / EN 60335-1	2GA27 **92-4R Z07**
SOFTWARE	
Comfortable PC software package for the control of the test run, management of test schedules, measurements and statistics (also usable for the units 92-4D and 92-4G)	2GA27 **95-9B Z92-4A**
ACCESSORIES	
Module housing 4 HU, depth 390 mm for the integration of the leakage current tester	2GA27 **93-1B**

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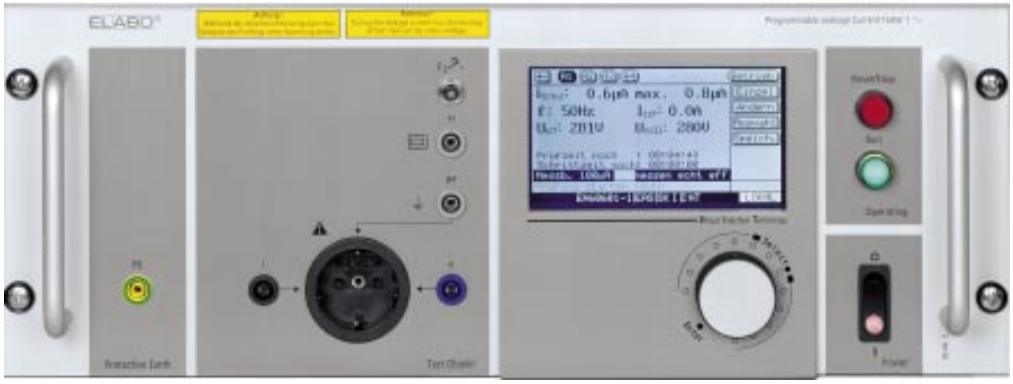

2GA27 **92-4D**

The single-phase measuring unit 92-4D enables norm concuring measurings and evaluations of leakage currents on electrical appliances. Unlike the leakage current tester 92-4A the output voltage of this device is floating. The output current (internal) is max. 4A.
The device can be used as an independent measuring system or as a component in semi or fully automatic test systems.

The testing instrument corresponds to the leakage current tester 92-4A.
For more details see 92-4A.

On request are available custom-designed units, norm-specific measuring circuits (UL, CSA etc.), equipment with higher testing currents etc.

Equipment variant	2GA27 **92-4D**	2GA27 **92-4D Z01**
Voltage setting	manual	automatical
TECHNICAL DATA		
Test voltage internal	0 .. 280 V - floating	
Test voltage external	50 ... 280 V	
Current internal/external	max. 4 A / max 15 A	
For all further technical data see 92-4A		
ORDERING DATA		
Leakage current tester basic design manual setting of test voltage, 19" / 4 HU		2GA27 **92-4D**
Leakage current tester basic design automatical setting of test voltage, 19" / 4HU		2GA27 **92-4D Z01**
MEASURING CIRCUITS / SOFTWARE / ACCESSORIES see leakage current tester 92-4A		

Leakage Current Tester three-phase

for stand-alone operation or automatic test systems

Product Group

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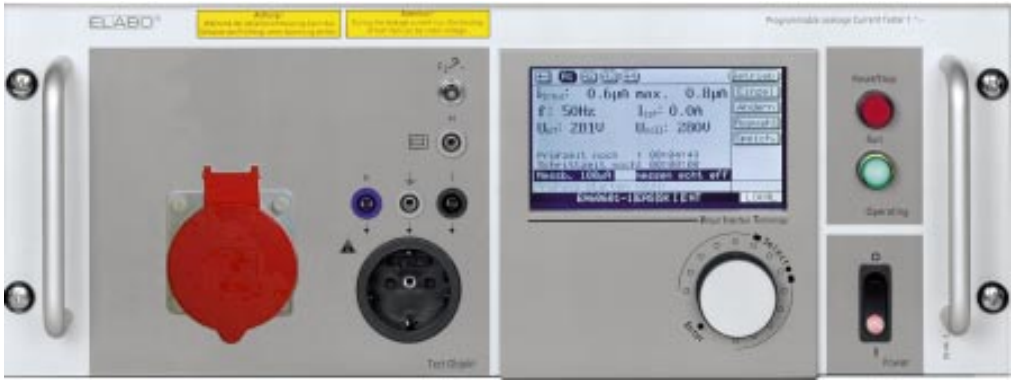
- 19“ / 4 HU slide-in unit
- for individual and system application
- single step testing and automatic test run by means of test schedules
- modular extendibility via norm-specific measuring circuits
- feeding of test voltage through external supply
- expandable for medicine technology
- large graphic capable LCD
- display menu - switchable to national language
- one-hand operation by rotary encoder with pressure point
- Password protection in three levels
- RS232 - interface for control via PC-software 95-9B Z92-4A or protocol printout
- CAN-interface (optional feature)
- comfortable PC-software package 95-9B Z92-4A for
  • controlling the test run
  • management of test schedules, measurements and statistics



2GA27 **92-4G**

The three-phase measuring unit 92-4G enables norm concuring measurings and evaluations of leakage currents on electrical appliances. The test voltage must be fed into the device by means of an external power supply.

The device can be used as an independent measuring system or as a component in semi or fully automatic test systems.

The testing instrument corresponds in operation and design to the leakage current tester 92-4A. For description of possible norms, control, etc see 92-4A.

On request are available custom-designed units, norm-specific measuring circuits (UL, CSA etc.), equipment with higher testing currents etc.

TECHNICAL DATA		
Test voltage external	3~ 50 ... 480 V 1~ 50 ... 280 V	
Current external	3~ max. 32 A 1~ max. 15 A	
Frequency external	50 ... 400 Hz	
Leakage current range	0 ... 100 µA / 0 ... 1 mA / 0 ... 10 mA	
Measuring error at 49 - 61 Hz:	TRMS, MAD and alternating component direct component, peak value measurement an measurement to EN 60990 Illustr. 3 : For all not medical measuring circuits the measuring error is min. 3 µA.	1.0% of rdg +10 Digit 2.0% of rdg +30 Digit
Measuring method:	A1 / A2	
Way of measurement:	TRMS, MAD, peak value, alternating and direct components	
Interfaces	RS232, CAN (optional feature)	
Mains supply	230 V +/- 10% / 49 - 61 Hz	
Weight	appr. 20 kg	
Dimensions	19" / 4 HU Depth 360 mm	

ORDERING DATA	
3~ Leakage current tester 19" / 4 HU	2GA27 **92-4G**
MEASURING CIRCUITS / SOFTWARE / ACCESSORIES see leakage current tester 92-4A	