



# TECHNICAL DATA SHEET

## Safety and function tester GLP2-BASIC

Revision 10-6, valid from January 2024

### Standard model GLP2-BASIC

#### **ELECTRICAL SPECIFICATIONS**

Supply voltage	110 to 250 V AC
Mains frequency	47 to 63 Hz
No load current consumption	0.5 A, fuse T10A

#### **GENERAL SPECIFICATIONS**

Display	7" color graphic display, resolution 800 x 480 pixels, display behind scratch-proof glass
Data input	PCAP capacitive touch display behind scratch-proof glass
Time & Date	clock with integrated calendar
Test plan storage	10.000 test plans
Test result storage	250.000 test results
Test connections	test probe connection on the rear side of the tester industrial plug connection on the rear side of the tester high-voltage sockets on the rear side of the tester
Safety	key lock <sup>1)</sup> access to the test parameters protected by password CAT IV safety relay with 2 contacts (emergency stop, test cover) input for release CE-conform, corresponding to VDE 0104 / EN 50191 / EN 61010
Interface (display)	HDMI port to operate an additional, large monitor screen / HDMI 1.0   800 x 480 and/or 800 x 600
Interfaces (communication)	2 x USB on the front side of the tester 4 x USB on the rear side of the tester LAN on the rear side of the tester RS232 on the rear side of the tester
Interfaces (standard)	outputs: result light, warning light inputs: foot-switch on the rear side of the tester, control plug, optional: two-hand start
Interface (PLC-I/O-remote control)	outputs: GO / NO GO, test is running, ready, HV on, I>min, disruptive discharge 16 x freely configurable outputs inputs: start, foot-switch, 4 x freely configurable inputs, e.g., for digital test plan selection between 15 test plans
Calibration	Adjustment via software without having to open the test device, remotely via SmartCalibration.
Software operator convenience	All inputs are checked by plausibility check. Therefore, wrong inputs should be avoided. The operator can display a detailed help text for any input option.
Front panel languages	DE, EN
Software languages	DE, EN, CS, ES, FR, IT, NL, PL
Design and production	Made in Germany – True German Quality

## MECHANICAL SPECIFICATIONS

Options	<ul style="list-style-type: none"><li>▪ desktop device in 19"-design incl. solid pedestals to put the tester into an inclined position</li><li>▪ rack-mount device: optional mounting kit for installation in a 19"-cabinet</li></ul>
Operating environment	operating temperature 0 °C to 50 °C / 32 °F to 104 °F, designed for a relative humidity of 0 to 80 %rF without condensation!
Storage	storage temperature -10 °C to 60 °C / 14 °F to 140 °F, designed for a relative humidity of 0 to 90 %rF without condensation!
Dimensions & Color	desktop device 19": 448 x 430 x 178 mm (W x D x H), RAL 7035
Weights	BASIC 10 – 11.2 kg / 24.7 lbs. BASIC 11 – 11.2 kg / 24.7 lbs. BASIC 320 – 13.4 kg / 29.5 lbs. BASIC 330 – 18.6 kg / 41.0 lbs. BASIC 440 – 18.6 kg / 41.0 lbs. BASIC 530 – 18.6 kg / 41.0 lbs. BASIC 820 – 11.2 kg / 24.7 lbs. BASIC 920 – 14.2 kg / 31.3 lbs. BASIC 930 – 19.4 kg / 42.8 lbs. BASIC 940 – 18.6 kg / 41.0 lbs. BASIC 1030 – 19.8 kg / 43.7 lbs. BASIC 1040 – 27.7 kg / 61.1 lbs. BASIC 1041 – 25.0 kg / 55.1 lbs. BASIC 1130 – 17.6 kg / 38.8 lbs. BASIC 1131 – 17.6 kg / 38.8 lbs. BASIC 1220 – 20.6 kg / 45.4 lbs. BASIC 1230 – 25.8 kg / 56.9 lbs. BASIC 1231 – 25.8 kg / 56.9 lbs. BASIC 1232 – 25.8 kg / 56.9 lbs. BASIC 1240 – 25.0 kg / 55.1 lbs. BASIC 1320 – 17.5 kg / 38.6 lbs. BASIC 1322 – 17.5 kg / 38.6 lbs. BASIC 1330 – 16.8 kg / 37.0 lbs. BASIC 1420 – 17.5 kg / 38.6 lbs. BASIC 1430 – 17.5 kg / 38.6 lbs. BASIC 1520 – 20.5 kg / 45.2 lbs. BASIC 1530 – 25.7 kg / 56.7 lbs. BASIC 1540 – 19.8 kg / 43.7 lbs. BASIC 1550 – 25.0 kg / 55.1 lbs. BASIC 1620 – 20.5 kg / 45.2 lbs. BASIC 1630 – 25.7 kg / 56.7 lbs. BASIC 1640 – 20.5 kg / 45.2 lbs. BASIC 1650 – 25.7 kg / 56.7 lbs. BASIC 1720 – 18.3 kg / 40.3 lbs. BASIC 1740 – 17.6 kg / 38.8 lbs. BASIC 1820 – 18.3 kg / 40.3 lbs. BASIC 1840 – 18.3 kg / 40.3 lbs. BASIC 1920 – 21.3 kg / 47.0 lbs. BASIC 1930 – 26.5 kg / 58.4 lbs. BASIC 1931 – 26.4 kg / 58.2 lbs. BASIC 1940 – 21.3 kg / 47.0 lbs. BASIC 1950 – 26.5 kg / 58.4 lbs.

- 1) Key lock only for testers with dangerous test voltages and/or dangerous test currents

# Earth / Ground-bond resistance test AC GLP2-BASIC

## TEST CURRENT AC

Test current max.	30 A AC, beginning 1 A, adjustable in steps of 1 A
Output Frequency	47 to 63 Hz, depending on mains supply
Current control	Automatic electronic constant-current control with minimum-current control and sense-interruption detector
Setting	default value + 0.5 A

## VOLTAGE

Test voltage max.	6 / 12 V AC – selectable in the test plan operator, with automatic maximum voltage limitation
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## RESISTANCE

Accuracy	high-precision 4-wire resistance measurement
Measuring range total	0 to 1200 mΩ, depending on the flowing test current and the permitted maximum voltage
Resolution	1 mΩ or 10 mV AC
Resistance measurement	0 to 1200 mΩ at 12 V and 10 A 0 to 600 mΩ at 6 V and 10 A 0 to 400 mΩ at 12 V and 30 A 0 to 200 mΩ at 6 V and 30 A
Milliohm offset range	0 to 300 mΩ   This value is subtracted from the measured value. It is used to compensate fixed and unchanging contact resistances.
Measuring accuracy	± 1.25 % of the measured value ± 1 digit

## EVALUATION

Evaluation related to	resistance or voltage drop
Upper resistance limit PE <sub>Rmax</sub> or upper voltage limit PE <sub>Umax</sub>	10 to 1200 mΩ freely definable, measured values equal to or under this limit are GO or alternately 0 to 12 V freely definable, measured values equal to or under this limit are GO
Lower resistance limit PE <sub>Rmin</sub> or lower voltage limit	freely definable, measured values under this limit are NO GO This function serves for contact control. This function can be deactivated. The lower resistance limit is always smaller than the upper limit.
Undercurrent	If the test current is smaller than the default value during test process, the test result is NO GO.

## GENERAL

Test timer	0 to 180 s in steps of 0.1 s
Measurement technique of U & I	high-precision true r.m.s measurement
Test points	usual: PE/GB in the test socket ↔ test probe special tester variant: test probe ↔ ground connection

# Insulation resistance test (IR) GLP2-BASIC

## TEST VOLTAGE

Test voltage	30 to 1000 V DC, adjustable in steps of 10 V
Voltage control	automatic electronic constant voltage control with undervoltage control
Setting	default value + 5 V

## CURRENT

Test current max.	max. 6 mA DC, safety current limiting
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## POWER

Power max.	max. 0.5 W
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## RESISTANCE

Measuring range 1	100 kΩ to 99.9 MΩ
Resolution	100 kΩ
Measuring accuracy	± 1 % of the measure value, at a test voltage of min. 500 V
Resistance-/voltage table	Resistance max. voltage / limited by maximum power

100 kΩ	220 V
250 kΩ	250 V
500 kΩ	500 V
1 MΩ	700 V
2 MΩ	1000 V

Measuring range 2	100 to 499.9 MΩ
Resolution	1 MΩ
Measuring accuracy	± 1.5 % of the measured value, at a test voltage of min. 500 V
Measuring range 3	500 to 999.9 MΩ
Resolution	1 MΩ
Measuring accuracy	± 2.5 % of the measured value, at a test voltage of min. 500 V
Measuring range 4	1 to 10 GΩ
Resolution	10 MΩ
Measuring accuracy	± 5 % of the measured value, at a test voltage of min. 500 V

## EVALUATION

Lower resistance limit Iso <sub>Rmin</sub>	100 kΩ to 10 GΩ freely definable, measured values equal to or above this limit are GO
Upper resistance limit Iso <sub>Rmax</sub>	500 kΩ to 10 GΩ freely definable, measured values above this limit are NO GO This function serves for contact control. This function can be deactivated. The upper resistance limit is always greater than the lower limit.
Undervoltage	If the test voltage is smaller than the default value during test process, the test result is NO GO.

## GENERAL

Test timer manual measurement	0 to 600 s in steps of 0.1 s (0 = continuous operation without time limit)
Ramp timer	0 s, 0.1 s, 0.2 s to 60 s in steps of 0.1 s
Delay time	Delay of the evaluation, e.g., to prevent the effect of switch-on effects on measurements
Measurement technique of U & I	Lowest measured value is used for evaluation
Discharge	≤ 200 ms – for test objects with only ohmic load provided that: after testing, the test connections still must be connected with the test object during discharge process
Discharge resistor	100 kΩ at IR with max. 1000 V test voltage
Residual voltage test	The test (test step) is only finished when output voltage decreased under 60 V.
Internal resistance	330 kΩ at IR with max. 1000 V test voltage Charge time of test object depends on internal resistance. min. charge time = internal resistance x capacity of test object [s]
Test points	L&N ↔ PE, L ↔ PE, N ↔ PE, L ↔ N, L ↔ test probe, N ↔ test probe, L&N ↔ test probe, L&N ↔ PE & test probe, PE ↔ PE

# High-Voltage test AC GLP2-BASIC

## TEST VOLTAGE

Test voltage and resolution	50 to 6000 V AC, <u>not</u> potential-free @ 3 mA safety current limiting, DUT must be set up isolated 50 to 6000 V AC, potential-free @ 100 mA
Resolution	1 V
Voltage adjustment	adjustable in steps of 10 V
Voltage control	automatic electronic constant-voltage control with undervoltage monitoring
Tolerance of setting	approx. 5 to 10 V higher than the default value, from no load to full load
Voltage measurement	True r.m.s. value or peak value, selectable by operator
Measuring accuracy	devices up to 6 kV: $\pm 0.25\%$ of measured value
Output frequency	47 to 63 Hz, depending on mains supply, optionally adjustable: 50/60 Hz

## POWER

Output power	<ul style="list-style-type: none"> <li>▪ max. 25 VA at device with 3 mA safety current limiting</li> <li>▪ max. 500 VA at device with 100 mA according to VDE-, EN- and IEC standards</li> </ul>
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## CURRENT

Test current, tester variant 1	3 mA safety current limiting with redundant overcurrent evaluation!
Resolution	1 $\mu$ A
Measuring accuracy	$\pm 2\%$ of the measured value $\pm 5 \mu$ A
Test current, tester variant 2	100 mA $I_k \geq 100$ mA from $\geq 500$ V, $\geq 500$ VA according to VDE-, EN- and IEC-standards $I_k \geq 200$ mA from $\geq 1000$ V, according to VDE-, EN- and IEC-standards
Resolution	10 $\mu$ A
Measuring accuracy	$\pm 2\%$ of the measured value $\pm 0.1$ mA
Current measuring and evaluation	true r.m.s value (TRMS) total current, active current or reactive current – selectable by operator

## EVALUATION

Upper current limit / $I_{max}$	0 to max. test current (depending on tester variant), measured values equal to or under this limit are GO
Lower current limit / $I_{min}$	0 to max. test current (depending on tester variant), measured values under this limit are NO GO This function serves for contact control. This function can be deactivated. The lower current limit is always smaller than the upper limit.
Undervoltage	If the test voltage is smaller than the default value during test process, the test result is NO GO.
Error detector	optic and acoustic

## GENERAL

Test timer	0 s to 200 h in steps of 0.1 s (0 = continuous operation without time limit)
Ramp up timer	0 s to 24 h in steps of 0.1 s (0 = without ramp up)
Ramp down timer	0 s to 4 h in steps of 0.1 s (0 = without ramp down)
Operation modes	4
<i>Manual</i>	Test is performed without timer. Shutdown at overcurrent.
<i>Automatic</i>	The voltage is automatically adjusted. Test is performed with timer. Shutdown at overcurrent or current outside the minimum / maximum limits.
<i>Burning</i>	Test is performed without timer, manual measurement only.
only at 100mA	No shutdown at overcurrent. Test current is electronically limited to max. 100 mA.
<i>Pulsing</i>	Test is performed without timer, manual measurement only.
not at 6 kV @ 3 mA	Shutdown for 0.5 s at overcurrent. Test current is electronically limited to max. 100 mA.
Discharge	0 to 100 ms provided that: after testing, the test connections still have to be connected with the test object during discharge process
Residual voltage test	The test (test step) is only finished when output voltage decreased under 60 V.

# High-voltage test DC GLP2-BASIC

## TEST VOLTAGE

Test voltage and resolution	50 to 6000 V DC, not potential-free, negative pole at PE (Earth - Ground)
Resolution	1 V
Ripple tester variant 1, 4 mA	< 4 % (6 kV @ 4 mA)
Ripple tester variant 2, 100 mA	up to 100 %, rectifier bridge with 10 nF filter capacity
Voltage adjustment	adjustable in steps of 10 V
Voltage control	automatic electronic constant voltage control with undervoltage control
Tolerance of setting	approx. 5 to 10 V higher than the default value, from no load to full load
Voltage measurement	Type 1: average value Type 2: peak value
Measuring accuracy	± 1.5 % of measurement value

## CURRENT

Test current, tester variant 1	4 mA, safety current limiting
Resolution	1 µA
Measuring accuracy	± 1 % of measuring range's final value
Test current, tester variant 2	100 mA
Resolution	100 µA
Measuring accuracy	0 to 100 mA: ± 2 % of measuring range's final value
Current measurement and evaluation	average value
Power	Type 1: Max. HV module power: 3 W Type 2: $I_k \geq 100$ mA from $\geq 500$ V, $\geq 500$ VA according to VDE-, EN- and IEC-standards $I_k \geq 200$ mA from $\geq 1000$ V, according to VDE-, EN- and IEC-standards

## INSULATION RESISTANCE

*only available for device type 1*

Range	100 kΩ to 1 GΩ
Resolution	100 kΩ
Measuring accuracy	± 1 % of measuring range's final value at min. 500 V

## EVALUATION resistance

*only available for device type 1*

Lower resistance limit $I_{SO_{Rmin}}$	100 kΩ to 1 GΩ freely definable, measured values equal to or above this limit are GO.
Upper resistance limit $I_{SO_{Rmax}}$	500 kΩ to 1 GΩ freely definable, measured values below this limit are GO This function serves for contact control. This function can be deactivated. The upper resistance limit is always larger than the lower one.
Undervoltage	If the test voltage is below the default value, the test result is NO GO.

## EVALUATION current

Upper current limit / $I_{max}$	0 to max. test current (depending on tester variant), measured values equal to or under this limit are GO
Lower current limit / $I_{min}$	0 to max. test current (depending on tester variant), measured values above this limit are GO This function serves for contact control. This function can be deactivated. The lower current limit is always smaller than the upper limit.
Undervoltage	If the test voltage is smaller than the default value during test process, the test result is NO GO.
Error detector	optic and acoustic

## GENERAL

Test timer	0 to 200 h in steps of 0.1 s (0 = continuous operation without time limit)
Ramp up timer	0 to 24 h in steps of 0.1 s (0 = ramp up off)
Ramp down timer	0 to 24 h in steps of 0.1 s (0 = ramp down off) at ohmic load only!
Discharge	≤ 200 ms provided that: after testing, the test connections still have to be connected with the test object during discharge process
Discharge resistor, tester variant 1	33 kΩ
Discharge resistor, tester variant 2	500 kΩ
Residual voltage test	The test (test step) is only finished when output voltage falls below 60 V.

# Continuity test and short-circuit test GLP2-BASIC

## TEST VOLTAGE

Test voltage	approx. 4.5 V DC
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## TEST CURRENT

Test current	max. 10 mA
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## RESISTANCE

Measuring method	2-wire method
Measuring range 1	1 $\Omega$ to 99.9 $\Omega$
Resolution	0.1 $\Omega$
Measuring accuracy	$\pm 1.5\%$ of the measured value $\pm 1.5\ \Omega$
Measuring range 2	100 $\Omega$ to 999.9 $\Omega$
Resolution	0.1 $\Omega$
Measuring accuracy	$\pm 1.5\%$ of the measured value $\pm 1.5\ \Omega$
Measuring range 3	1 to 9.99 k $\Omega$
Resolution	10 $\Omega$
Measuring accuracy	$\pm 1.5\%$ of the measured value $\pm 10\ \Omega$
Measuring range 4	10 to 100 k $\Omega$
Resolution	100 $\Omega$
Measuring accuracy	$\pm 2.5\%$ of the measured value $\pm 100\ \Omega$
L $\leftrightarrow$ N short-circuit test	▪
Test points	L $\leftrightarrow$ N, L $\leftrightarrow$ PE, N $\leftrightarrow$ PE, test probe $\leftrightarrow$ PE

## EVALUATION

Upper & lower Limit $\pm$ tolerance in % of default value	resistances within the tolerance limits are GO
Upper limit	resistances under this limit are GO
Lower limit	resistances above this limit are GO

# Function test 5 A GLP2-BASIC

## TEST VOLTAGE

Test voltage	12 to 260 V AC single-phase potential-free via an integrated isolating transformer
Resolution	0.1 V
Voltage adjustment	adjustable in steps of 1 V
Voltage control	automatic electronic constant voltage control with undervoltage and overvoltage control
Tolerance of setting	0 to $\pm 1$ % of the default value, from no load to full load
Voltage measurement	true r.m.s. value (TRMS)
Measuring accuracy	$\pm 1.5$ % of measuring range's final value
Output frequency	47 to 63 Hz, depending on mains supply, optionally adjustable: 50/60 Hz

## CURRENT

Test current	max. 5 A AC continuous current at 230 V supply voltage with 12 to 230 V test voltage max. 5, reduced to 4.4 A continuous current AC at 230 V supply voltage with a proportional reduction to the test voltage from 230 V to 260 V max. 5 A AC continuous current at 110 V supply voltage and 110 V test voltage max. 5, reduced to 2.1 A AC continuous current at 110 V supply voltage with a proportional reduction to the test voltage from 110 V to 260 V
Measuring range 1	0.5 A
Resolution	10 $\mu$ A
Measuring accuracy	$\pm 1.5$ % of measuring range's final value
Measuring range 2	5 A
Resolution	1 mA
Measuring accuracy	$\pm 1.5$ % of measuring range's final value
Current measurement and evaluation	true r.m.s value (TRMS)

## POWER in W, VA, $\cos\phi$

Power	1150 VA maximum permanent power at 230 V @ 5 A 550 VA maximum permanent power at 110 V @ 5 A
Measuring range 1	130 VA at 260 V @ 0.5 A
Resolution	1 mVA
Measuring range 2	1300 VA at 260 V @ 5 A
Resolution	0.1 VA
Power measurement and evaluation	VA, W

## EVALUATION

Upper & lower Limit I $\pm$ tolerance in % of the default value	0 to 5 A, measured values within the tolerance limits are GO
Upper & lower Limit W $\pm$ tolerance in % of the default value	0 to 1300 W, measured values within the tolerance limits are GO
Upper & lower Limit VA $\pm$ tolerance in % of the default value	0 to 1300 VA, measured values within the tolerance limits are GO
Upper & lower Limit VAR $\pm$ tolerance in % of the default value	0 to 1300 VAR, measured values within the tolerance limits are GO
Upper & lower Limit $\cos\phi$ $\pm$ tolerance in % of the default value	0 to 1, measured values within the tolerance limits are GO
Undervoltage / Overvoltage	If test voltage is smaller than -1.5 % of the default value, test result is NO GO. If test voltage is greater than +1.5 % of the default value, test result is NO GO.
Electronic short-circuit detection	continuously short-circuit proof with automatic electronic current limiting
Error detector	optic and acoustic

## GENERAL

Starting time	0 to 1 h in steps of 0.1 s (0 = off). Bridging of a start process, start-up, etc. No evaluation of measurements during the starting time.
Test timer	0 to 1 h in steps of 0.1 s
Residual voltage test	The test (test step) is only finished when output voltage decreased under 60 V.



# Function test 16 A GLP2-BASIC

## TEST VOLTAGE

Test voltage	16 A tester: 0 to 260 V AC single-phase, externally supplied via separate connection
Resolution	0.1 V
Voltage adjustment	Voltage adjustment not possible
Voltage control	externally controlled and supplied with undervoltage and overvoltage control
Tolerance of setting	No voltage setting
Voltage measurement	true r.m.s value (TRMS)
Measuring accuracy	±1.5 % of measuring range's final value
Output frequency	50 or 60 Hz, depending on mains supply

## CURRENT

Test current	16 A AC
Resolution up to 9.9 A	1 mA
Resolution 10 to 16 A	10 mA
Current measurement and evaluation	true r.m.s value (TRMS)
Measuring accuracy	16 A testers: ± 1.5 % measuring range's final value

## POWER W, VA, $\cos\phi$

Power	4200 W, 4200 VA maximum permanent power at 260 V @ 16 A
Resolution	1 VA, 1 W
Power measurement and evaluation	VA, W

## EVALUATION

Upper & lower limit I ± tolerance in % of the default value	0 to 16 A, measured values within the tolerance limits are GO
Upper & lower limit W ± tolerance in % of the default value	0 to 4200 W, measured values within the tolerance limits are GO
Upper & lower limit VA ± tolerance in % of the default value	0 to 4200 VA, measured values within the tolerance limits are GO
Upper & lower limit VAR ± tolerance in % of the default value	0 to 4200 VAR, measured values within the tolerance limits are GO
Upper & lower limit $\cos\phi$ ± tolerance in % of the default value	0 to 1, measured values within the tolerance limits are GO
Undervoltage / Overvoltage	If test voltage is smaller than -1.5 % of the default value, test result is NO GO. If test voltage is greater than +1.5 % of the default value, test result is NO GO.
Electronic short-circuit detection	no electronic fuse, fuse protection via 2 x 16 A MCBs
Error detector	optic and acoustic

## GENERAL

Starting delay timer	0 to 200 h in steps of 0.1 s (0 = off). Bridging of a start process, start-up, etc. No evaluation of measurements during the starting time.
Test timer	0 to 200 h in steps of 0.1 s
Residual voltage test	The test (test step) is only finished when output voltage decreased under 60 V.

## Leakage current test at testers with 5 A GLP2-BASIC

### TEST VOLTAGE

Test voltage	12 to 260 V AC single-phase potential-free via an integrated isolation transformer Voltage supplied by function test
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### CURRENT

Supply current DUT	max. 5 A AC continuous current at 230 V supply voltage with 12 to 230 V test voltage max. 5, reduced to 4.4 A continuous current AC at 230 V supply voltage with a proportional reduction to the test voltage from 230 V to 260 V max. 5 A AC continuous current at 110 V supply voltage and 110 V test voltage max. 5, reduced to 2.1 A AC continuous current at 110 V supply voltage with a proportional reduction to the test voltage from 110 V to 260 V
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### LEAKAGE CURRENT

Leakage current $I_{\text{eff}}$	max. 30 mA
Measuring ranges	5 with automatic switchover of measuring ranges
Resolution	1 $\mu\text{A}$
Accuracy	$\pm 1.5\%$ of the measured value + 1 $\mu\text{A}$
Current measurement	$I_{\text{RMS}}$ , $I_{\text{Peak}}$ , $I_{\text{dc-component}}$ , $I_{\text{ac-component}}$
Measuring method	ground leakage current, housing leakage current
Standards	EN60990, EN60601
Measuring circuits	3 x MD for EN60990, 1 x MD for EN60601
Fault conditions	1 (PE interrupted), 2 (N interrupted), with normal and reverse polarity
Max. measurement frequency	500 Hz
Test points	L+N ↔ PE, L+N ↔ test probe

### EVALUATION

Upper limit	0 to 30 mA
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## Substitute leakage current test at testers with 16 A GLP2-BASIC

### TEST VOLTAGE

Test voltage	approx. 40 V AC single-phase
Calculated test voltage	25 to 300 V

### LEAKAGE CURRENT

Leakage current $I_{\text{eff}}$	0 to 30 mA (calculated)
Resolution	10 $\mu\text{A}$
Accuracy	1.5 % of the measured value + 10 $\mu\text{A}$
Calculated test current	10 $\mu\text{A}$ to 30 mA
Measuring method	ground leakage current, housing leakage current
Standards	EN 50678/50699 and VDE 0701/0702; touch current measurement – alternative method
Test points	L+N ↔ PE, L+N ↔ test probe

### EVALUATION

Upper limit	30 mA
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# Resistance test with voltage adjustment max. 3 A GLP2-BASIC

## GENERAL

Measuring ranges	4 ranges
4-wire measurement	Yes
Measuring time	min. 0.3 s (The measuring time can be decreased for an additional charge if required)
Test current	max. 3 A
Open circuit voltage	ca. 4.5 V
Test voltage	≤ 4.5 V, this is equivalent to ≤ open-circuit voltage

## MEASURING RANGES

Measuring range 1	0 to 100 kΩ (1 MΩ) – Maximum current < 50 μA – Test voltage ≤ 4.5 V	
100 Ω – 1 kΩ	Measuring accuracy: 1.0 %	Resolution: 0.1 Ω
1K Ω – 10 kΩ	Measuring accuracy: 1.5 %	Resolution: 1 Ω
10 kΩ – 100 kΩ	Measuring accuracy: 1.5 %	Resolution: 10 Ω
100 kΩ – 1 MΩ	Measuring accuracy: 2.5 %	Resolution: 100 Ω
Measuring range 2	0 to 10 kΩ – Maximum current < 5 mA – Test voltage ≤ 4.5 V	
10 Ω – 100 Ω	Measuring accuracy: 0.5 %	Resolution: 0.01 Ω
100 Ω – 1 kΩ	Measuring accuracy: 0.5 %	Resolution: 0.1 Ω
1 kΩ – 10 kΩ	Measuring accuracy: 0.5 %	Resolution: 1 Ω
Measuring range 3	0 to 100 Ω – Maximum current < 500 mA – Test voltage ≤ 4.5 V	
0.1 Ω – 1 Ω	Measuring accuracy: 0.3 %	Resolution: 0.001 Ω
1 Ω – 10 Ω	Measuring accuracy: 0.3 %	Resolution: 0.001 Ω
10 Ω – 100 Ω	Measuring accuracy: 0.3 %	Resolution: 0.01 Ω
Measuring range 4	0 to 10 Ω – Maximum current < 3 A – Test voltage ≤ 4.5 V	
0.000 Ω – 0.001 Ω	Measuring accuracy: 12.5 %	Resolution: 0.00001 Ω (only if test device has no other test methods)
0.001 Ω – 0.01 Ω	Measuring accuracy: 1.5 %	Resolution: 0.00001 Ω
0.01 Ω – 0.1 Ω	Measuring accuracy: 0.3 %	Resolution: 0.0001 Ω
0.1 Ω – 1 Ω	Measuring accuracy: 0.3 %	Resolution: 0.001 Ω
1 Ω – 10 Ω	Measuring accuracy: 0.3 %	Resolution: 0.001 Ω

# Resistance test with current adjustment max. 1 A GLP2-BASIC

## GENERAL

Measuring ranges	4 ranges (0 to 10 Ω, 0 to 100 Ω, 0 to 10 kΩ, 0 to 100 kΩ (0 to 1 MΩ))
4-wire measurement	Yes
Measuring time	min. 0.3 s
Test current	max. 1 A
Current adjustment active	up to 2.2 Ω @ 1 A; ab 2.2 Ω @ < 1 A
Open circuit voltage	ca. 8 V

## MEASURING RANGES

Measuring range 1	0 bis 100 kΩ (1 MΩ) – Maximum current < 50 μA – Test voltage ≤ 8 V	
100 Ω – 1 kΩ	Measuring accuracy: 1.0 %	Resolution: 0.1 Ω
1K Ω – 10 kΩ	Measuring accuracy: 1.5 %	Resolution: 1 Ω
10 kΩ – 100 kΩ	Measuring accuracy: 1.5 %	Resolution: 10 Ω
100 kΩ – 1 MΩ	Measuring accuracy: 2.5 %	Resolution: 100 Ω
Measuring range 2	0 to 10 kΩ – Maximum current < 5 mA – Test voltage ≤ 8 V	
10 Ω – 100 Ω	Measuring accuracy: 0.5 %	Resolution: 0.01 Ω
100 Ω – 1 kΩ	Measuring accuracy: 0.5 %	Resolution: 0.1 Ω
1 kΩ – 10 kΩ	Measuring accuracy: 0.5 %	Resolution: 1 Ω
Measuring range 3	0 to 100 Ω – Maximum current < 500 mA – Test voltage ≤ 8 V	
0.1 Ω – 1 Ω	Measuring accuracy: 0.3 %	Resolution: 0.001 Ω
1 Ω – 10 Ω	Measuring accuracy: 0.3 %	Resolution: 0.001 Ω
10 Ω – 100 Ω	Measuring accuracy: 0.3 %	Resolution: 0.01 Ω
Measuring range 4	0 to 10 Ω – Maximum current < 1 A – Test voltage ≤ 8 V	
0.000 Ω – 0.001 Ω	Measuring accuracy: 15 %	Resolution: 0.00001 Ω (only if test device has no other test methods)
0.001 Ω – 0.01 Ω	Measuring accuracy: 3 %	Resolution: 0.00001 Ω
0.01 Ω – 0.1 Ω	Measuring accuracy: 0.3 %	Resolution: 0.0001 Ω
0.1 Ω – 1 Ω	Measuring accuracy: 0.3 %	Resolution: 0.001 Ω
1 Ω – 10 Ω	Measuring accuracy: 0.3 %	Resolution: 0.001 Ω

# RoHS conformity

We declare the conformity of our products with the **RoHS2 directive 2011/65/EU** of the European Parliament and of the Council of June 8, 2011 on the restriction of the use of hazardous substances in electrical and electronic equipment, as well as conformity with the **extended delegated directive 2015/863/EU** from March 31, 2015, effective July 22, 2019.

# REACH conformity

As a manufacturer of electronic products, SCHLEICH GmbH is a so-called "downstream user" within the meaning of 'REACH'. SCHLEICH GmbH is not subject to any obligations arising from the manufacture and placing on the market of substances/chemicals for pre-registration or registration (ECHA). Our products supplied to customers are "articles" and therefore not to be defined as "substance" or "preparation" (in accordance with Article 3 Definitions). Furthermore, under normal and reasonably foreseeable conditions of use, no substances should be released from the products purchased by customers. Therefore, SCHLEICH GmbH is neither subject to the registration obligation nor to the obligation to prepare safety data sheets. In order to keep the supply chain secure and in the interest of maximum product safety, we make sure that our suppliers fulfill all requirements for the materials and substances we use.

# Glossary

Adjustment	Correction of a measurement value if the calibration showed too large a deviation.
Average value	The average value is calculated with direct voltages. It is the average of a number of test values.
Calibration	Regular annual inspection and documentation of the deviation compared to the reference value.
Condensation	Condensation means that moisture is produced at the inside or at the outside of the testing device. This must be avoided under all circumstances.
Current-interruption detector	Serves to check, whether the current is interrupted at the PE/GB-resistance test. In case of interruption and after the current is back, the test timer restarts automatically. This automatic process can be repeated up to three times.
DUT	Abbreviation for test object ( <b>D</b> evice <b>U</b> nder <b>T</b> est)
DUT connection check	The DUT connection check serves to monitor, whether the DUT is correctly connected to the testing device.
GO	Short for "OK" (pass)
Limit (lower)	This is a value that must not be fallen below.
Limit (upper)	This is a value that must not be exceeded.
Measuring accuracy	The measuring accuracy refers to the measured value.
NO GO	Short for "not OK" (fail)
Peak value	The peak value of the sine wave is often relevant for the high-voltage test AC. Regardless of the positive or negative sign of the sine half wave, the indicated peak value is the highest measured.
RMS value	The RMS value is detected quickly and precisely following the exact mathematical definition. This is independent from the distortion of the sine signal. This is why SCHLEICH units always show the <i>true RMS value</i> .
Safety inputs	The device is released via two safety inputs. This function is defined as two-circuit.

# More information

## More information

For further information please visit our homepage [www.schleich.com](http://www.schleich.com)

## Disclaimer

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## SCHLEICH – green innovations

SCHLEICH is acting according to following corporate guidelines:

### Environment protection and reduction in energy consumption