TECHNICAL DATASHEET

Safety and function tester
GLP2-BASIC

Revision 3.4 / valid from January 2015

Standard model

ELECTRICAL SPECIFICATION	
Supply voltage	110-250 V AC
Mains frequency	47-63 Hz
No load current consumption	0.5 A, fuse T10A
GENERAL SPECIFICATION	
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 socket[1)] on the front panel of the testers test probe connection on the rear side of the tester industrial plug connection [1,2)] on the rear side of the tester high-voltage sockets on the rear side of the tester
Safety	key lock[3)] access to the test parameters protected by password 2 x Interlock-safety inputs HV, dual-circuit according CAT IV, internal relays with positively driven contacts 2 x Interlock- safety inputs NV, dual-circuit according CAT IV, internal relays with positively driven contacts input for emergency stop CE-conform, corresponding to VDE 0104 / EN 61010
Interface (display)	HDMI port to operate an additional, large monitor screen / HDMI 1.0 800x480 and/or 800x600
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, two-hand start, control plug
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, stop, foot-switch, 4 x freely configurable inputs
Calibration	by software, without opening up the tester
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.
Operation languages	DE, US
Software languages	DE, US, IT, ES, FR
Design and production	Made in Germany – True German Quality
MECHANICAL SPECIFICATION	
Variants	▪ desktop device , ergonomically designed, optionally available with a 3-stage slewable front panel ▪ desktop device in 19“-design incl. solid pedestals to put the tester into an inclined position ▪ rack-mount device : optional mounting kit for installation in a 19“-cabinet
Working environment	working temperature 0° - 50° C / 32° - 104° F, designed for a relative humidity of 0 - 80%rF without condensation!
Storage	storage temperature -10° - 60° C / 14° - 140° F, designed for a relative humidity of 0 - 90%rF without condensation!

Dimension & Color	desktop device, ergonomically designed: 480 x 470 x 225 mm (W x D x H), red housing desktop device 19“-design: 448 x 430 x 178 mm (W x D x H), RAL 7035

1) Design of the test connections is freely configurable when order is placed.
2) If industrial plug connection on the rear side of the tester is ordered, the test socket and/or connection for test probe are omitted.
3) Key lock only for testers with dangerous test voltages and/or dangerous test currents

Earth / Ground-bond resistance test AC

TEST CURRENT AC	
Test current max.	30 A AC, beginning 1 A, adjustable in steps of 1 A
Frequency	47-63 Hz, depending on mains supply
Current control	Automatic electronic constant-current control with minimum-current control and current-interruption detector
Setting	default value + 0.5 A
VOLTAGE	
Test voltage max.	6 / 12 V AC – selectable by operator, with automatic maximum voltage limitation
RESISTANCE	
Accuracy	high-precision 4-wire resistance measurement
Measuring range total	0 - 1200 mΩ, depending on the flowing test current and the permitted maximum voltage
Resolution	1 mΩ or 10 mV
Resistance measurement from - to	0-1200 mΩ at 12 V and 10 A 0-600 mΩ at 6 V and 10 A 0-400 mΩ at 12 V and 30 A 0-200 mΩ at 6 V and 30 A
Milliohm offset range	10-100 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_{Rmax} or upper voltage limit PE_{Umax}	0-1200 mΩ freely definable, measured values equal to or under this limit are OK or alternately 0-12 V freely definable, measured values equal to or under this limit are OK
Lower resistance limit PE_{Rmin} or lower voltage limit	freely definable, measured values under this limit are NOT OK 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, 0.5 s, 0.6 s, 0.7 s - 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)

TEST VOLTAGE	
Test voltage	30-1000 V DC, adjustable in steps of 10V
Voltage control	automatic electronic constant voltage control with undervoltage control
Setting	default value + 5 V
CURRENT	
Test current max.	max. 3 mA DC – safety current limiting
POWER	
Power max.	max. 0.5 W
RESISTANCE	
Measuring range 1	100 KΩ - 99 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	100-499 MΩ
Resolution	100 KΩ, 1 MΩ
Measuring accuracy	±1.5% of the measured value, at a test voltage of min. 500 V
Measuring range 3	500-1 GΩ
Resolution	1 MΩ
Measuring accuracy	±2.5% of the measured value, at a test voltage of min. 500 V
Measuring range 4	1-10 GΩ
Resolution	10 MΩ
Measuring accuracy	±5% of the measured value, at a test voltage of min. 500 V
EVALUATION	
Lower resistance limit Iso_{Rmin}	100 KΩ-10 GΩ freely definable, measured values equal to or above this limit are OK
Upper resistance limit Iso_{Rmax}	500 KΩ-10 GΩ freely definable, measured values above this limit are NOT OK 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	0, 0.5 s, 0.6 s, 0.7 s - 600 s in steps of 0.1 s (0 = continuous operation without time limit)
Measurement technique of U & I	high-precision averaging measurement
Discharge	≤200 ms –at a test object with only ohmic load provided that: after testing, the test connections still have to 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

High-Voltage test AC

TEST VOLTAGE	
Test voltage and resolution	50-6000 V AC potential-free @ 3 mA safety current limiting 50-6000 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 control
Tolerance of setting	0 to +1% of default value, from no load to full load
Voltage measurement	True r.m.s value or peak value, selectable by operator
Measuring accuracy	0-10 mA: ±1.5% of measuring range's final value 10-100 mA: ±1.5% measuring range's final value
Output frequency	47 - 63 Hz, depending on mains supply
POWER	
Output power	▪ max. 25 VA at device with 3 mA safety current limiting ▪ max. 500 VA at device with100 mA according to VDE-, EN- and IEC standards
CURRENT	
Test current, tester variant 1	3 mA safety current limiting with redundant overcurrent evaluation!
Resolution	1 µA
Measuring accuracy	±2% of the measured value ±5 µA
Test current, tester variant 2	100 mA I_k ≥ 100 mA from ≥ 500 V, ≥ 500 VA according to VDE-, EN- and IEC-standards I_k ≥ 200 mA from≥ 1000 V, according toVDE-, EN- and IEC-standards
Resolution	10 µA
Measuring accuracy	±2% of the measured value ±0,1 mA
Current measuring and evaluation	true r.m.s value (TRMS) or peak value, selectable by operator total current, active current or reactive current – selectable by operator
EVALUATION	
Upper current limit / Imax	0-max. test current (depending on tester variant), measured values equal to or under this limit are OK
Lower current limit / Imin	0-max. test current (depending on tester variant), measured values under this limit are NOT OK 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, 0.5 s, 0.6 s, 0.7 s - 200 h in steps of 0.1 s, mode: auto = test timer, mode: manual = continuous operation
Ramp up timer	0, 0.5 s, 0.6 s, 0.7 s - 24 h in steps of 0.1 s (0 = without ramp up)
Ramp down timer	0, 0.5 s, 0.6 s, 0.7 s -24 h in steps of 0.1 s (0 = without ramp down)
Measurement technique of U & I	high-precision true r.m.s value or peak value measurement (U_{TRMS} - U_{Peak} - I_{TRMS} - I_{Peak})
Operation modes	4
Manual	Test is performed without timer. Shutdown at overcurrent.
Automatic	The voltage is automatically adjusted. Test is performed with timer. Shutdown at overcurrent or current outside the minimum / maximum limits.
Burning only at 100mA	Test is performed without timer. No shutdown at overcurrent. Test current is electronically limited to max. 100 mA.
Pulsing not at 6 KV - 3 mA	Test is performed without timer. Shutdown for 0.5 s at overcurrent. Test current is electronically limited to max. 100 mA.
Discharge	0-100 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

TEST VOLTAGE	
Test voltage and resolution	50-6000 V DC not potential-free, negative pole at PE (Earth - Ground)
Resolution	1 V
Ripple	< 4% (6 KV @ 4 mA)
Voltage adjustment	adjustable in steps of 10V
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	average value
Measuring accuracy	±1% of measuring range's final 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	10 µA
Measuring accuracy	0-10 mA: ±1% of measuring range's final value 10-100 mA: ±1% of measuring range's final value
Current measurement and evaluation	average value
INSULATION RESISTANCE	
Range	100 KΩ - 100 MΩ
Resolution	100 KΩ
Measuring accuracy	±1% of measuring range's final value at min. 500 V
EVALUATION	
Lower resistance limit Iso_{Rmin}	100 KΩ-10 GΩ freely definable, measured values equal to or under this limit are OK
Upper restiance limit Iso_{Rmax}	500 KΩ-10 GΩ freely definable, measured values above this limit are ok This function serves for contact control. This function can be deactivated. The upper resistance limit is always larger than the lower.
Undervoltage	If the test voltage is smaller than the default value, the test result is NO GO.
Please have a look at	technical details „Insulation resistance test"
EVALUATION	
Upper current limit / Imax	0 - max. test current (depending on tester variant), measured values equal to or under this limit are OK
Lower current limit / Imin	0 - max. test current (depending on tester variant measured values under this limit are OK 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, 0.5 s, 0.6 s, 0.7 s - 200 h in steps of 0.1 s, mode : auto = test timer, mode: manual = continuous operation
Ramp up timer	0, 0.5 s, 0.6 s, 0.7 s - 24 h in steps of 0.1 s (0 = ramp up off)
Ramp down timer	0, 0.5 s, 0.6 s, 0.7 s - 24 h in steps of 0.1 s (0 = ramp down off) at ohmic load only!
Measurement technique of U & I	high-precision averaging value or peak value measurement (U_{AVG} - U_{Peak} - I_{AVG} - I_{Peak})
Discharge	≤200 ms provided that: after testing, the test connections still have to be connected with the test object during discharge process
Discharge resistor	33 KΩ
Residual voltage test	The test (test step) is only finished, when output voltage decreased under 60 V.

Continuity test and short-circuit test

TEST VOLTAGE	
Test voltage	approx. 4.5 V DC
TEST CURRENT	
Test current	max. 10 mA
RESISTANCE	
Measuring method	2-wire technique
Measuring range 1	1 Ω-1 kΩ
Resolution	0,1 Ω
Measuring accuracy	±1,5% of the measured value ± 1.5 Ω
Measuring range 2	1-10 kΩ
Resolution	1 Ω
Measuring accuracy	±1,5% of the measured value ± 5 Ω
Measuring range 3	10-100 kΩ
Resolution	10 Ω
Measuring accuracy	±2,5% of the measured value ± 10 Ω
L↔ N short-circuit test	▪

EVALUATION	
Upper & lower Limit ±tolerance in % of default value	resistances within the tolerance limits are OK
Upper limit	resistances under this limit are OK
Lower limit	resistances above this limit are OK

Function test 5 A

TEST VOLTAGE	
Test voltage	12-260 V AC one-phase potential-free via an integrated isolating transformer
Resolution	0,1 V
Voltage adjustment	adjustable in steps of 1V
Voltage control	automatic electronic constant voltage control with undervoltage and overvoltage control
Tolerance of setting	0 to +1% of the default value, from no load to full load
Voltage measurement	true r.m.s value (TRMS)
Measuring accuracy	±1.5% of measuring range's final value
CURRENT	
Test current	5 A AC
Measuring range 1	0.5 A
Resolution	10 µA
Measuring accuracy	±1.5% of measuring range's final value
Measuring range 2	5 A
Resolution	1 mA
Measuring accuracy	±1.5% of measuring range's final value
Current measurement and evaluation	true r.m.s value (TRMS)
POWER in W, VA, VAR, cosφ	
Power	1300 VA maximum permanent power at 260 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 or VAR
EVALUATION	
Upper & lower Limit I ± tolerance in % of the default value	0-5 A, measured values within the tolerance limits are OK
Upper & lower Limit W ± tolerance in % of the default value	0-1300 W, measured values within the tolerance limits are OK
Upper & lower Limit VA ± tolerance in % of the default value	0-1300 VA, measured values within the tolerance limits are OK
Upper & lower Limit VAR ± tolerance in % of the default value	0-1300 VAR, measured values within the tolerance limits are OK
Upper & lower Limit cosφ ± tolerance in % of the default value	0-1, measured values within the tolerance limits are OK
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 delay timer	0, 0.5 s, 0.6 s, 0.7 s - 1 h in steps of 0.1 s (0 off)
Test timer	0, 0.5 s, 0.6 s, 0.7 s - 1 h in steps of 0.1 s
Measurement technique of U & I	high-precision true r.m.s value measurement (U_{TRMS} - I_{TRMS})
Residual voltage test	The test (test step) is only finished, when output voltage decreased under 60 V.

Function test 16 A

TEST VOLTAGE	
Test voltage	16 A tester: 0 - 260 V AC one-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
CURRENT	
Test current	16 A AC
Resolution	1 mA
Current measurement and evaluation	true r.m.s value (TRMS)
Measuring accuracy	16 A tester: ±1.5% measuring range's final value
POWER W, VA, VAR, cosφ	
Power	4200 W, 4200 VA, 4200 VAR maximum permanent power bei 260 V @ 16 A
Resolution	1 VA, 1 W, 1 VAR
Power measurement and evaluation	VA, W or VAR
EVALUATION	
Upper & lower limit I ± tolerance in % of the default value	0-16 A, measured values within the tolerance limits are OK
Upper & lower limit W ± tolerance in % of the default value	0-4200 W, measured values within the tolerance limits are OK
Upper & lower limit VA ± tolerance in % of the default value	0-4200 VA, measured values within the tolerance limits are OK
Upper & lower limit VAR ± tolerance in % of the default value	0-4200 VAR, measured values within the tolerance limits are OK
Upper & lower limit cosφ ± tolerance in % of the default value	0-1, measured values within the tolerance limits are OK
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 MCBs
Error detector	optic and acoustic
GENERAL	
Starting delay timer	0, 0.5 s, 0.6 s, 0.7 s - 200 h in steps of 0.1 s (0 = off)
Test timer	0, 0.5 s, 0.6 s, 0.7 s- 200 h in steps of 0.1 s
Measurement technique U & I	high-precision true r.m.s. measurement (U_{TRMS} - I_{TRMS})
Residual voltage test	The test (test step) is only finished, when output voltage decreased under 60 V.

Leakage current test at testers with 5A

TEST VOLTAGE	
Test voltage	12 - 260 V AC one-phase potential-free via an integrated isolation transformer Voltage supplied by function test
CURRENT	
Test current	5 A AC
LEAKAGE CURRENT	
Leakage current I_{eff}	max. 30 mA
Measuring ranges	5 with automatic switchover of measuring ranges
Resolution	1 µA
Accuracy	±1,5% of the measured value + 1 µA
Current measurement	I_{TRMS} , I_{Peak} , $I_{DC\text{-}Anteil}$, $I_{AC\text{-}Anteil}$
Measuring method	ground leakage current, housing leakage current
Standards	EN60990, EN60601
Measuring circuits	3 x MD for EN60990, 1 x MD for EN60601
Operating modes	A1, A2, B
Frequency of leakage current	500 Hz
Test points	L+N↔ PE, L+N↔ test probe
EVALUATION	
Upper limit	0 - 30 mA

Equivalent leakage current test at testers with 16A

TEST VOLTAGE	
Test voltage	approx. 40 V AC one-phase
Calculated test voltage	25 - 300 V
LEAKAGE CURRENT	
Leakage current I_{eff}	max. 30 mA
Resolution	10 µA
Accuracy	1,5% of the measured value + 10 µA
Calculated test current	10 µA–30 mA
Measuring method	ground leakage current, housing leakage current
Standards	DIN VDE 0701-0702
Test points	L+N↔ PE, L+N↔ test probe
EVALUATION	
Upper limit	0-30 mA

Further information

Further information

For further information please have a look on our hompage www.schleich.com

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