



ELECTRICAL SAFETY TESTERS

SMG 50 - 50 VA • SMG 500 - 500 VA

- Dielectric strength test from 0 to 5 kVAC and 0 to 6 kVDC (option)
- Insulation resistance from 50kΩ up to 200GΩ (2TΩ option)
- Ground continuity from 1 mΩ to 1500 mΩ
- Leakage current and power measurement (with FMG rack)
- 8 test step sequence
- 50 parameter sets storage
- RS232C, PLC or IEEE488-2 interfaces
- Printer interface



APPLICATIONS

The SMG series electrical safety testers perform easily and simply all the electrical tests according to the VDE, UL, CSA ... standards and to the main EN European standards involved in the LOW VOLTAGE DIRECTIVE.

The SMG is a combination of a dielectric strength tester, a megohmmeter and a ground continuity tester. Together with the FMG rack, the SMG performs also leakage current measurement under nominal voltage, and power measurement.

CHARACTERISTICS DIELECTRIC STRENGTH TEST FUNCTION

Output voltage

- 0 to 5kVAC - 50 - 60Hz. Limited to 4.2kVAC with the FMG501
- 0 to 6kVDC in option
- Accuracy: +/- (2%+50V) (SMG50) and +/- (3%+50V) (SMG500) of the preset value between 100 to 5000V and for a current < 100 μA (SMG50) and < 1 mA (SMG500) with the detection modes: ΔI, IMAX or ΔI+IMAX

Voltage reading

- On a digital kilovoltmeter connected on the output terminals
- Accuracy: +/- (1.5%+20V)
- Display: 600 digits

Stability

- Less than 1% for a mains variation of +/- 10% (SMG50)
- Less than 3% for a mains variation of +/- 10% (SMG500)

Current

- Short circuit < 10 mA AC and DC for the max. voltage adjustment (SMG50)
- Short circuit > 200 mA AC and > 20 mA DC for the max. voltage adjustment (SMG500 - Short circuit duration limited to 5 seconds).
- nominal # 5 mA AC (SMG50)
- nominal # 100 mA AC (SMG500)

Current reading

- On a shunt resistor inserted in the test circuit
- Accuracy: +/- (2.5%+2U) 1U=0.01 mA (SMG50), 1U=0.1 mA (SMG500)
- Display: 1000 digits
- Breakdown detection
- 'DELTA TEST' detector adjusted for ΔI=1 mA +/- 10% (SMG50) and

ΔI=10 mA +/- 10% (SMG500) with 10 μSec. +/- 20%. Total insensitivity to current due to the resistance and the capacitance of the device under test

- 'IMAX' detection by maximum current adjustable from 0.01 mA to 9.99 mA by 0.01 mA steps (SMG50) and from 0.1 mA to 99.9 mA by 0.1 mA steps (SMG500)
- DELTA TEST and IMAX mode combination

IMIN threshold function

- Detects whether the probe is properly connected to the specimen under test
- Adjustable from 0.01 mA to 9.99 mA (SMG50) and from 0.1 mA to 99.9 mA (SMG500)

DC voltage option

- Positive pole grounded
- Ripple < 1% for I < 100 μA (SMG50) and I < 1 mA (SMG500)

Breakdown indication

- By visual (LCD screen and LED) and sound signal
- Breakdown voltage and current are stored on the LCD display
- HV primary transformer is cut off when the sine wave crosses zero

Timer

- Rise, hold and fall time adjustment between 0 and 999 sec.

Storage

- 10 test parameters (voltage, threshold, time ...) sets can be stored

MEG OHMMETER FUNCTION

Measurement range

- 50kΩ to 200GΩ (2TΩ in option)

Voltage	Measurement range
50V	50kΩ à 20GΩ
100V	100kΩ à 40GΩ
250V	250kΩ à 100GΩ
500V	500kΩ à 200GΩ
1000V (option 26)	1MΩ à 200GΩ

Accuracy

- +/- (1.5%+1U)
- Resolution: 2000 digits

Threshold

- A High limit (making specimen under test detection possible) and a Low limit adjustable from 50kΩ to 200GΩ (2TΩ option)

Measurement voltage

- 50-100-250-500VDC
- 100-250-500-1000VDC (option 26)
- Accuracy: +/- (1%+2V)
- Max. current: 2mA

Measurement time

- Adjustable from 0 to 999 sec. or permanent

Storage

- 10 test parameter (voltage, threshold, time ...) sets can be stored.

GROUND CONTINUITY FUNCTION

- 0001Ω to 1500Ω
- display in voltage drop according to the EN60204 standard

Accuracy

- +/- (2.5%+10mΩ)
- Display: 1500 digits

Threshold

- High and Low limits adjustable from 0001Ω to 1500Ω
- Threshold adjustable in volt according to EN60204 standard

AC current

- 5 to 30 AAC by 0.5 A step, with load regulation
- Accuracy: +/- (1%+0.5A)
- Current can be progressively applied from 5 A to the maximum test value.
- Open circuit voltage: < 6 or < 12 VAC sinus
- Frequency: mains power supply (50 or 60Hz)

Measurement time

- Current rise time from 0 to 999 sec.
- Hold time from 0 to 999 sec.
- Without any limit

Storage

- 10 test parameter (current, threshold, time ...) sets can be stored.

LEAKAGE CURRENT MEASUREMENT

Refer to FMG501 data sheet

SEQUENCE FUNCTION

- 8 test steps automatically sequenced among: Dielectric strength test, Insulation, Ground continuity, Leakage, Pause, Multiple continuity.
- Each test function is linked to a parameter memory number.
- 10 sequence setups storage
- Example of a sequence performing a Dielectric strength test with parameter memory number 1, followed by an insulation test with parameter memory number 0, followed by a Pause, then by a Ground continuity test repeated on 10 different points with parameter memory number 5
- L1: HIPOT 1
- L2: MEGOHM 0
- L3: PAUSE
- L4: POINTS 10
- L6: CONTI 5
- SMGPRO software on a PC computer makes possible to perform infinite number of test steps.

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PRINTER FUNCTION

- Print out on a 40 or 80 column parallel Centronics printer
- Print out in SEQUENCE mode of all the test results
- Print out of the date and time
- Print out of the test parameters on request
- Auto incremental mode for the serial numbers

SEFELECSMG500° 146 15-06-98 13:54	
SOCIETE: MARTEK PRODUIT: SEF1000	
OPERAT: DUPONT	LOT: 15
CNT (O) : 10.0 A [0.000 CE-500.0mCE]	
12VAC	0s 1s 0s
FEPX3	
ISO (O) : 500 VDC [0.000 CE-200.0GCE]	
2s	
RIG (O) : 1.50KVAC [0.000 A -1.000mA]	
IMAX+()I	2s 2s 2s
FUI (O) : 244VAC [200 V -270 V]	
A1A2T	3s
60335-1 [0.000 A -3.500mA]	
SRC: EXT CAP: OUI CORP: NON	
N. SERIE: VD353	
CNT	1,81mCE 0.02V EON
CNT	1,81mCE 0.02V EON
CNT	1,81mCE 0.02V EON
ISO	200 GCE EON
RIG	1.49 KV 0.00mA EON
FUI	40.00uA 220.3 Va 1 EON
FUI	60.00uA 220.2 Va 2 EON
SEQUENCE	: EON

REMOTE CONTROL SOFTWARE

National Instruments Labview Drivers

- Software drivers which can be used in a Labview application to remote control the MG series unit through a RS232C or IEEE488-2 interface.
- Remote control of all the unit functions
- Floppy disk including install and de-install files
- Measurement results in Excel format

SMGPRO application software

- Wide range of softwares controlling the MG series according to your application
- Standard software under Labview, Visual Basic available
- Specific software on request

PROTECTIONS

Instrument

- By slow blow fuse

Operator

- No HV or current on the outputs as long as the safety interlock is open

Device under test

- Fast breakdown detection
- HV primary cut off
- Output terminals shorted and capacitors discharged (DC option, $t < 1$ sec. per μ F)

GENERAL CHARACTERISTICS

Presentation

- Table top unit
- Metal case

Dimensions

- Height: :180mm
- Width: :430mm
- Depth: :470mm

Weight

- 28kg

Power

- 230V +/-10% or 115V +/-10% single phase-47-63Hz

- Consumption: 70 to 600VA depending on test

Operating temperature

- 0° C to +45° C

Storage temperature

- -10° C to +60° C

Over-voltage category

- CAT II

Pollution degree

- 2

Safety class

- Class I (earth connection)

OPTIONS

01: RS232C (Talker - Listener) interface

02: PLC interface

- START contact
- PASS and FAIL contacts
- END OF TEST contact
- FAULT contact

03: 0-10 volts input and output
 .0-10 volts input to control the High Voltage
 0-10 volts outputs for the voltage and the current

06: IEEE488-2 (Talker - Listener) interface

07: GOOD-BAD contact

08: Option 02+03

09: Rear panel outputs not removable for SMG series

10: AC-DC (6kVDC-10 mA short circuit) - SMG50

13: AC-DC (6kVDC-20 mA short circuit) - SMG500

14: permanent operation @ 5mA AC - SMG50

20: Insulation resistance measurement up to 2T Ω

22: Resistance display in M Ω x km

24: Special measurement voltage between 45 and 514 volts

26: Insulation resistance measurement under 100-250-500-1000VDC

92: Parallel printer interface

93: Remote control box (option 02 or 07 are requested)

SOFTWARES

MG95: Software for MG series unit used together with a relay matrix

MG96: SMGPRO software for Home appliance test

MG98: Labview - National Instruments drivers

MG99: QBASIC example

OPTIONAL ACCESSORIES

TE54 (SMG50) - TE65 (SMG500): Test probe (hipot + insulation)

TE84 (SMG50) - TE83 (SMG500): Test pistol (hipot + max. insulation = 2G Ω)

TE66: 4 wire ground continuity test probe (CO183+CO184)

TE80: 2 wire ground continuity test probe with remote control push button

TE81: 2 wire ground continuity test probe with remote control push button and Pass-Fail LED (for multiple continuity)

CO160-02: Red - Green lamp to indicate the HV presence

CO183: 2 wire ground continuity test lead with alligator clip

CO184: 2 wire ground continuity test lead with retractable tip

CO178: pistol return earth (hipot + insulation)

CO200 (SMG50) - CO201 (SMG500): Test box equipped with 1 mains female socket (schüco)

CO177 (SMG50) - CO180 (SMG500): HV test lead for test system connection (not removable)

CO192 (SMG50) - CO193 (SMG500): Test box with 6 international mains female sockets

AO10: 2 hand remote control

AO11: remote control foot switch

AO14: 25 point multiple accessories interconnection box

KRMG4U: 19" rack mount kit

CS1-10: safety chamber for SMG50

CS1-12: safety chamber for SMG50

CS2-10: safety chamber for SMG500

CS2-12: safety chamber for SMG50

REM: high value resistor (to select from 1M Ω upto 100T Ω)

CALIBRATION KIT [STANDARDS AND OPERATING MANUAL]

MG91

- calibration box for Insulation and Hipot 50VA

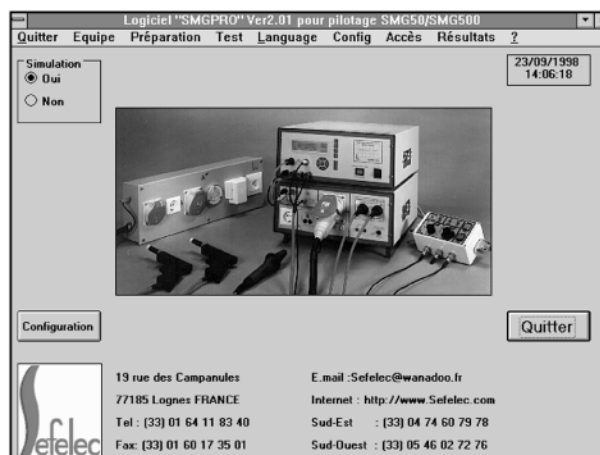
MG91-500VA

- calibration box for Hipot 500VA

MG91-30A

- calibration box for Ground continuity

MG 96 : SMG PRO



Software available in different languages

