C.A 6545
C.A 6547

Megohmmeters

Experts in insulation analysis at 5 kV

Photo: “Factory in Choisy-le-Roy: property of Syndicat des Eaux d’Ile-de-France”

- **Giant backlit LCD screen with digital display + bargraph**
- **30 kΩ…10 TΩ range**
- **4 predetermined test voltages: 500 / 1000 / 2500 and 5000 V**
- **Programmable test voltage position: 40 to 5100 V in 10 V or 100 V steps**
- **Qualitative insulation analysis: automatic calculation of DAR, PI and DD (Dielectric Discharge) ratios and R(t) graph plotting**

CHAUVIN ARNOUX

Built for use on site!

In their site-adapted hard casing, the C.A 6545 and C.A 6547 megohmmeters offer the very best in insulation testing technology and accuracy. They automatically measure voltage, capacitance, and residual current.
The C.A 6547 model comes with memory and a RS232 link for controlling the instrument with a PC or transferring data from memory to the MEGOHMVIEW processing software.

Site-proof casing with sealed (IP 53), shock resistant cover

Socket for AC mains connection and internal NiMH battery charger

Folding handle for storing

RS 232 (C.A 6547) for PC or printer connection

Giant backlit LCD display with digits, symbols and bargraph

Accessories for all measurement conditions

The C.A 6545 and C.A 6547 megohmmeters are delivered with a tool-bag containing measurement accessories specially designed for maximum efficiency and professional use.

The clamps and plugs are perfectly insulated, and the measurement leads are 3 m long (8 m and 15 m lengths are optional).
A 3 m guard lead is also supplied for high-insulation measurements.

A sure expert!

POLARIZATION INDEX (PI) & DIELECTRIC ABSORPTION RATIO (DAR)

Insulation results on rotating machines and long cables can be rendered inaccurate due to unwanted currents. To eliminate their influence, it is necessary to measure over a long duration and calculate with PI and DAR coefficients. These calculations are used to qualify the quality and ageing of the insulation.

PI = R10mn / R1mn*	DAR = R1mn / R30s	Insulation quality
< 1	< 1.25	Dangerous
1 to 2		Inadequate
2 to 4	1.25 to 1.6	Good
> 4	> 1.6	Excellent

* So to adapt to possible normative changes or a particular application, the 10mn and 1mn times for calculating PI can be changed in the instrument's SET-UP.

DIELECTRIC DISCHARGE TEST (DD)

This test is especially adapted for measurement on heterogeneous and multi-layer insulation for it can reveal a defective layer among layers with high resistance. With conventional insulation measurement as with the PI and DAR calculation, this problem can go undetected.
Principle: after the insulation has been energized for a certain time, its capacitance is measured; then 1 mn later the residual current is measured:

$$DD = \frac{\text{Current measured after 1 mn (mA)}}{\text{Test voltage (V) x Capacitance measured (F)}}$$

DD value	Insulation quality
> 7	Very poor
4 to 7	Poor
2 to 4	Inadequate
< 2	Good

Var 50-5000 V POSITION

To assure that the C.A 6545 and C.A 6547 meet all measurement needs (electric switchgear, telecom installations, etc.) and measure as accurately as possible, the test voltage can be selected with the Var 50-5000 V position on the rotary switch. Voltage can be adjusted between 40 and 1000 V in 10 V steps and between 1000 and 5100 V in 100 V steps.

R(t) GRAPH PLOTTING

When a time-controlled test is begun, the C.A 6545 and C.A 6547 memorize measured insulation samples at a rate specified by the operator.
The R(t) graph can then be plotted out either by hand or directly on a PC screen using the MEGOHMVIEW software.

TIME-CONTROLLED TESTING

Insulated measurements sometimes take a long time to stabilize due to transient unwanted currents. Being able to carry out measurements over a longer duration and analyze the insulation as a function of the test voltage application time gives a better understanding of the quality of the insulation.

BARRING INSULATION TEST VOLTAGES

It is possible to limit the test voltage to a unique value regardless of the chosen test voltage, so to be able to entrust the instrument to someone who is less experienced or to avoid procedural errors on sensitive installations or equipment.

SMOOTH FUNCTION

When measurement values are unstable, this function smoothes out the values displayed, making them easier to read and quicker to interpret.

PROGRAMMABLE ALARMS

A high or low alarm threshold can be stored. If exceeded, a visual warning signal and an audible buzzer will go off.

MEMORIZATION (C.A 6547)

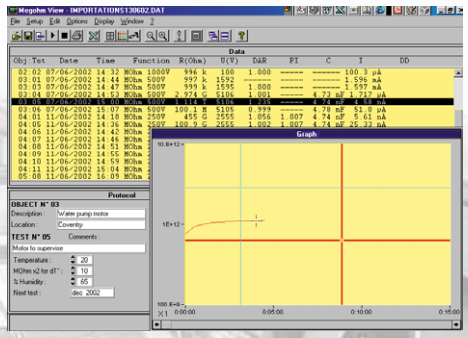
The C.A 6547 has an internal memory for storing several thousand measurements. Measurements are stored by classification according to the object (OBJ) and test (TEST) address for systematic memory storage of tests.

PRINTER (C.A 6547)

A compact serial printer, available as an accessory, can be connected to the C.A 6547, for printing directly on site. It is also possible to use a parallel office printer, using the 'serial-to-parallel adapter' accessory.

MEGOHMVIEW SOFTWARE (C.A 6547)

The PC software makes it possible to: store data in memory; plot R(t) graphs; print personalized test protocols; create text files for use with spreadsheets (Excel™ etc.); and set up and control the instrument via the RS 232!



Metrology — C.A 6545 and C.A 6547

INSULATION

Test voltages	500 V	1000 V	2500 V	5000 V	Variable (40 V...5100 V)
Range	30 kΩ …1.999 TΩ	100 kΩ … 3.999 TΩ	100 kΩ … 9.999 TΩ	300 kΩ … 9.999 TΩ	30 kΩ …9.999TΩ
Resolution	1 kΩ to 10 GΩ depending on range				
Accuracy	± (5% R + 3 cts) 30 kΩ to 40 GΩ then ± (5% R +10 cts)				

VOLTAGE (automatic)

Measured constantly before and during the measurements.
Measurement not possible if external voltage on the terminals is too high.
Measurement stops if very high unwanted voltage is detected.

Measurement range	1.0…99.9 V	100…999 V	1000…2500 V	2501…5100 V
Frequency range	DC and 15 Hz...500 Hz		DC	
Resolution	0.1 V	1 V	2 V	2 V
Accuracy	± 1% R + 5 cts	1% R + 1 ct		

CAPACITANCE (automatic)

Measured automatically during insulation measurement.
Displayed once the measurement ends.

Range	0.005 to 9.999 µF	10.00 to 49.99 µF
Resolution	1 nF	10 nF
Accuracy	10% R + 1 ct	

LEAKAGE CURRENT (automatic)

Measured automatically during insulation measurement.
Displayed once the measurement ends.

Range	0.000 to 0.250 nA	0.251 to 9.999 nA	10.00 to 99.99 nA	100.0 to 9.999 µA	1.000 to 99.99 µA	10.00 to 0.250 nA	100.0 to 999.9 µA	1000 to 3000 µA
Resolution	1 pA		10 pA	100 pA	1 nA	10 nA	100 nA	1 µA
Accuracy	15%R	10%R	5% R					10%R

GENERAL SPECIFICATIONS	C.A 6545	C.A 6547
Giant bargraph (logarithmic)	Yes	
Backlit display	Yes	
Programmable alarms	Yes	
SMOOTH function	Yes	
Display of the test voltage generated	Yes	
Programming of test duration	Yes	
Automatic calculation of DAR and PI ratios	Yes	
Dielectric discharge test	Yes, and DD calculation	
Automatic memorization of the progression of the insulation value as a function of test voltage application time (R(t) function)	Yes, limited to 20 samples	Yes, with128 kbyte internal memory
Memorization of measurements	-	Yes, with 128 kbyte memory
RS 232	-	Bi-directional
Result print out	-	Yes, on serial or parallel printer
PC software	-	Optional
On-site serial printer	-	Optional
Supply	NiMH rechargeable battery - 8 x 1.2 V / 3.5 Ah	
Charge life	30 days 10 DAR and 5 PI / day	
Electrical safety	IEC 61010-1 - Cat. III, 1000 V or Cat. I, 2500 V - and 61557	
Protection index	IP 53 when open	
Climatic conditions	-10°C to 55°C and 10 to 80% RH in use -40°C to 70°C and 10 to 90% RH in storage	
Dimensions	270 x 250 x 180 mm	
Weight	4.3 kg	

TO ORDER

C.A 6545 **P01.1397.01**

C.A 6547 **P01.1397.02**

Delivered complete with tool-bag containing accessories:

- 2 x 3 m safety leads with HV plug and HV crocodile clip (red / blue)
- 1 x 3 m safety guard lead with HV rear pick up plug and HV crocodile clip (black)
- 1 x 2 m mains supply lead
- 1 x 0.35 m rear pick up lead (blue)
- 5 plastic-coated, two-sided condensed user's manual
- user's manual in 5 languages

OPTIONAL ACCESSORIES

- PC software for C.A 6547 — **P01.1019.38A**
- Serial printer for C.A 6547 — **P01.1029.03**
- Serial-to-parallel adapter for C.A 6547 — **P01.1019.41**
- 8 m HV blue crocodile clip lead — **P01.2952.14**
- 8 m HV red crocodile clip lead — **P01.2952.15**
- 8 m HV crocodile clip/rear pick up lead — **P01.2952.16**
- 15 m HV blue crocodile clip lead — **P01.2952.17**
- 15 m HV red crocodile clip lead — **P01.2952.18**
- 15 m HV crocodile clip/rear pick up lead — **P01.2952.19**
- 2 X 3 m leads with HV / 4 mm banana plugs (1 red / 1 black) — **P01.2952.31**
- 3 m guard lead with HV / 4 mm banana plugs + blue crocodile clip — **P01.2952.32**
- 2 Ø 4 mm crocodile clips (1 red / 1 black) — **P01.1018.48**
- 2 Ø 4 mm test probes (1 red / 1 black) — **P01.1018.55**
- 1 K-type thermocouple input thermometer C.A 861 — **P01.6501.01Z**

906 211 047 - Ed.2 - 11/02. VS. Characteristics subject to modifications according to technological developments.

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