The benchmark for 50 V to 1 kV insulation measurement

C.A 6541
C.A 6543

Megohmmeters



- Giant back-lit LCD screen with digital display + bar graph
- 2 kΩ…4 TΩ range
- Automatic calculation of insulation quality ratios (DAR, PI)
- Graph plotting R(t)
- Memory / RS232 / rechargeable battery (C.A 6543)

CE

CHAUVIN ARNOUX

Instruments built for on-site use!

In their compact hard cases, megohmmeters C.A 6541 and C.A 6543 give you the very best in insulation testing technology. These microprocessor-controlled instruments are equipped with highly advanced functions for measurement of insulation (up to 4 TΩ at 50 V to 1000 V), AC/DC voltage, continuity at 200 mA, resistance, capacitance...
Model C.A 6543 also comes with a rechargeable battery, memory and an RS232 serial link, enabling you to control the instrument with a PC. This also makes it possible to transfer data from memory for processing via the specially developed software package. In short, these are professional instruments built for use by professionals!



Remote control probe

The remote control probe is an optional accessory specially developed to make on-site measurements (particularly those on insulation), a quicker and easier process.

The operator starts and stops measurement by simply pressing the probe's yellow button.

The probe has a lighting facility that gives effective illumination of the measurement point (approx. 500 lux). This and the megohm-meter's back-lit screen makes testing possible at any time of year, any time of day.



Expert insulation analysis at 50 V to 1 kV!

POLARISATION INDEX (PI) AND DIELECTRIC ABSORPTION RATIO (DAR)

Insulation test results on rotating machines can be rendered inaccurate due to transient eddy currents that interfere with the measurement before they cancel out. To eliminate their influence on the test it is necessary to measure over a long duration. The absolute insulation value, read off at the end of the measurement, and the calculation of PI and DAR coefficients (automatic on the C.A 6541 and 6543) go to make it possible to qualify the quality and ageing of insulation.

PI = R_{10min} / R_{1min}	DAR = R_{1min} / R_{30s}	Insulation quality
< 1 or < 2	< 1.25	inadequate, dangerous even
from 2 to 4	from 1.25 to 1.6	good insulation
> 4	> 1.6	excellent insulation

TIME-CONTROLLED TESTING

Insulation measurements sometimes take a long time to stabilise due to transient eddy currents. The ability to be able to carry out measurements over a longer duration, and to analyse the insulation as a function of the test voltage application time, gives a better understanding of the quality of the insulation.

GRAPH PLOTTING R(t)

When a time-controlled test is begun, the C.A 6541 and 6543 automatically sample and memorise insulation values, at a rate specified by the operator. The R(t) graph can then be plotted out using these values, either by hand or directly on a PC screen using the software for the C.A 6543.

BARRING OF INSULATION TEST VOLTAGES

To entrust the instrument upon someone that is perhaps less experienced, or to avoid procedural errors on sensitive installations or equipment, it is possible to prohibit the use of each of the insulation test voltages (50 V, 100 V, 250 V, 500 V or 1000 V).

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

For each of the functions a high or low alarm threshold can be stored which, if exceeded, will trigger a visual warning signal on the display as well as an audible buzzer.

MEMORISATION (C.A 6543)

The C.A 6543 has an internal memory for the storage of several thousands of measurements. Measurements are stored by classification according to the OBJ (= object) and TEST (= test) address, for systematic memory storage of results. This enables the recording of different tests (TEST) made on particular machines or installations (OBJ).

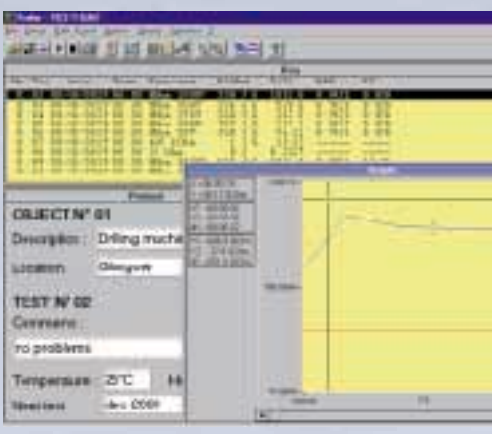
PRINTER (C.A 6543)

A compact serial printer, available as an accessory (ref. P01.1029.03), can be connected to the C.A 6543, enabling you to print out there and then, whilst on site. It is also possible to use a parallel office printer, using the 'serial-to-parallel adapter' accessory (ref. P01.1019.41).



SOFTWARE (C.A 6543)

The PC software makes it possible to store data in memory, to plot graphs showing the progression of insulation against test voltage application time = R(t), to print out personalised test protocols depending on the user's needs, to create text files for use with spreadsheets (Excel™...) and also to set up and have complete control of the instrument via the RS232!



Metrology	C.A 6541 and C.A 6543
INSULATION (1)(2)	
Test voltages	50 V 100 V 250 V 500 V 1000 V
Range	2kΩ…200GΩ 4kΩ…400GΩ 10kΩ…1TΩ 20kΩ…2TΩ 40kΩ…4TΩ
Resolution	from 1kΩ to 1GΩ depending on range
Accuracy	+/- (5%R + 3 cts) from 2kΩ…40GΩ then +/- (15%R + 10 cts)
Barring of test voltages	for each test voltage
RESISTANCE (1)	
Range	0.01 Ω…400 kΩ
Resolution	from 0.01 Ω to 100 Ω depending on range
Accuracy	+/- (3%R + 3 cts)
CONTINUITY (1)	
Audible beep	Yes
Range	0.01 Ω…40 Ω
Resolution	0.01 Ω
Accuracy	+/- (3%R + 4 cts)
Measurement current	> 200 mA (0.01… 19.99 Ω)
Lead compensation	Yes
Automatic voltage test	
Range	1…1000 V AC (16…420Hz) or DC
Resolution	1V
Accuracy	+/- (1%R + 3 cts)
Automatic capacitance test	
Range	0.005… 4.999 µF
Resolution	1 nF
Accuracy	+/- (10%R + 1 cts)

(1) Before each measurement there is an automatic voltage test that prohibits measurement if a voltage is present on the test element.
(2) Each insulation test is automatically followed by a voltage test, to monitor the discharging of the tested circuit, and a capacitance test.





The practical accessory carrying bag attaches itself to the lid of the case via 4 press-on buttons.

General specifications	C.A 6541	C.A 6543
Giant bar graph (logarithmic)	Yes	
Back-lit display	Yes	
Programmable alarms	Yes	
SMOOTH function	Yes	
Display of the exact test voltage generated	Yes	
Programming of test duration	Yes	
Automatic calculation of ratios	Yes, DAR and PI	
Automatic memorisation of the progression of the insulation value as a function of test voltage application time R(t)	Yes, limited to 20 samples	Yes, with 128 Kb internal memory
Memorisation of measurements	-	Yes, with 128 Kb memory
RS232	-	Bi-directional
Printing out of results	-	Yes, on serial or parallel printer
PC software	-	Optional
On-site serial printer	-	Optional
Supply	8 x LR14 batteries	Mains 85 V-256 V 50/60Hz or rechargeable battery (internal charger)
Operating radius	21 000 x 5 s insulation tests 16 000 x 5 s continuity tests	5 000 x 5 s insulation tests 4 000 x 5 s continuity tests
Remote control probe with lighting facility for illumination of measurement point	Optional	
Electrical safety	CEI 61010-1 + A2 - Cat III - 600 V and CEI 61557	
Protection rating	IP54	
Climatic conditions	-10 to +55°C and 20 to 80% RH in use - 40 to +70°C and 10 to 90% RH in storage	
Dimensions	240 x 185 x 110 mm	
Weight	3.4 kg (incl. batteries)	

TO ORDER

C.A 6541	**P01.1389.01**
C.A 6543	**P01.1389.02**

Complete with carrying bag containing all the accessories:

- 2 x 1.5 m safety leads *(red/blue)*
- 1 x 1.5 m guarded safety lead *(black)*
- 3 x crocodile clips *(red/blue/black)*
- 1 x test probe *(black)*
- 1 x 2-sided condensed user's manual
- 1 user's manual
- 8 x LR14 batteries (for C.A 6541) or 1 x 2m mains lead (for C.A 6543)

OPTIONAL ACCESSORIES:

Remote control probe	**P01.1019.35**
PC software for C.A 6543	**P01.1019.38**
Serial printer for C.A 6543	**P01.1029.03**
Serial-to-parallel adapter for C.A 6543	**P01.1019.41**
Pair of 2 test probe leads *(red/ black)*	**P01.1018.55**
Set of 3 x 3m safety leads *(red/blue/guarded black)*	**P01.2951.70**

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