CHAUVIN ARNOUX

CA 6550 & CA 6555

10 kV / 15 kV Insulation Tester

Insulation Measurement at 15 kV, a Job for Experts

- Measurement range from 10 kΩ to 30 TΩ
- Fixed or programmable test voltage from 40 V to 10/15 kV
- 5 mA charging current
- Real-time graphical display of R(t)+u(t), i(t), i(u)
- DAR / PI / DD / .R (ppm/V) ratios
- Voltage ramp and step with “burn-in”, “early break” and “I-limit” modes
- 3 Iters to optimize measurement stability
- Calculation of R at a reference temperature
- Storage of 80,000
- Report generation with the DataView software

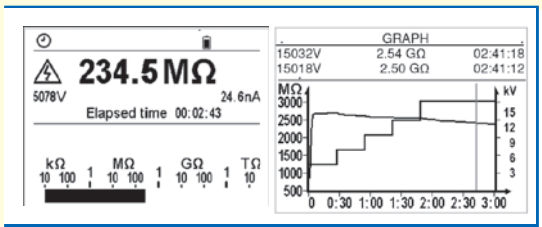
IP54 | 1000 V CAT IV | IEC 61557 | USB

Measure up

Performance & ergonomics

With their test voltages of up to 10 kV/15 kV, the CA 6550 and CA 6555 megohmmeters are expert tools for testing insulation safely and accurately. As they comply with the most recent recommended practice while taking into account future developments, they are ideal for use on rotating equipment and machinery operating at 12 kV or even higher.

The multiple test modes mean that you can both assess the insulation in qualitative terms by non-destructive testing ("I-limit" and "early-break" modes) and use samples to investigate insulation ageing problems for preventive maintenance purposes ("burning" mode).



Large backlit graphic LCD screen

Work in total safety with 1,000 V CAT IV accessories

For immediate use, the C.A 6550 and C.A 6555 are delivered with a bag for the 1,000 V CAT IV accessories:

- 2 leads and 1 guard cable terminated by High Voltage crocodile clips.
- vailable as an option: 2 leads and one simplified guard cable.

Applications & fonctionnalités

Thanks to their wide measurement range, up to 30 TΩ, the CA 6550 and CA 6555 are ideal for manufacturers off cables, transformers, rotating machines and high-voltage generators, as well for professionals in the power Transmission & Distribution (T&D) sector.

- Insulation measurement at up to 10/15 kV on LV/HV rotating machines, transformers, cables, high-voltage generators, overhead and underground electricity transmission and distribution networks, surge suppressors / spark arresters, measurement transducers, etc.

2 levels of diagnostics:

- "Go/No Go" test
- Qualitative measurement for preventive maintenance purposes:
  - Test with programmable duration
  - Qualitative measurement: Polarization Index (PI) ratio, dielectric absorption ratio (DAR) and dielectric discharge (DD) index for testing heterogeneous multi-layered insulation
  - Fixed voltage mode,
  - Step, Ramp mode: results independent of temperature, detection of cracking and insulant ageing or contaminated insulation
  - I-limit or dI/dt (early-break) trigger modes: optimization of non-destructive tests (e.g. Varistor testing)
- Burning mode (no triggering)
- selectable voltage from 40 V to 10,000 / 15,300 V
- -Graphic LCD display of R(t) + u(t), I(t), I(u) (useful for testing semi-conductors)
- Storage of results for export onto a PC by means of analysis software to process the measurement logs.

Reduced insulation may be due to gradual deterioration over long periods or to sudden damage. Analysis of the quality ratios (PI-DARDD) is a quick and reproducible way of revealing different types of phenomena involved in insulant deterioration.

The presence of several digital Iters with different time constants helps to improve noise immunity and a 5 mA charging current with a short discharge time means quicker measurement results.

Recent recommendations such as IEEE 43 suggest test voltages of up to 10 kV/15 kV for equipment and installations with a high operating voltage.

Various test modes, such as "burning", "I-limit" or dI/dt "early-break", allow targeted analyses ranging from periodic testing for preventive maintenance to investigation of samples in "burning" mode.

By archiving the results and monitoring the way the measured values evolve over time, you can gain precious guidance on the the action needed to reduce machine and installation downtimes.

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

Insulation is affected by temperature and humidity variations. Moreover, the appearance of disturbance currents means that the measurement is false right from the start. To eliminate these in uences, you have to measure over the long term and calculate the PI and DAR coef cients in order to assess the quality and ageing of the insulants.

DIELECTRIC DISCHARGE (DD)

This test can be used to detect the presence of a faulty layer among other high-resistance layers.

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

U-Var POSITION

To handle all measurement environments (electrical equipment, telecommunications installations, rotating machinery, etc.) and measure with the greatest possible accuracy, both instruments offer the U-Var rotary-switch position which allows users to select a voltage among 3 con gurable values and then cause it to vary during the test from 40 to 10,000 V/15,000 V, in 10 V steps from 40 to 1,000 V and in 100 V steps above 1 kV.

PROGRAMMABLE ALARMS

An alarm threshold can be memorized. When there is an overrun, visual and audible alarms are triggered.

STORAGE

The CA 6550 and CA 6555 are equipped with internal memory capable of storing several tens of thousands of measurements. Two indices, OBJ (object) and TEST, are used to store the time/date-stamped results in an ordered way.

VOLTAGE RAMP AND STEP

The resistance of a faulty insulant falls as the test voltage increases. This test, which involves increasing the test voltage step by step, helps to assess the quality of the insulant by observing the curve R(Utest) and the result in ppm/V, which gives a quantitative indication of the curves slope. A ramp mode with a rise time between the two values is also available.

TEST WITH PROGRAMMABLE DURATION

Insulation measurements sometimes take a long time to stabilize because of transient disturbance currents. Insulant quality can be assessed more accurately by means of long-term measurements and analysis of the insulation's trend curve according to the time for which the test voltage is applied.

GRAPH R(t)+u(t), i(t), i(u)

If a test with a programmed duration is run, the instruments automatically store the data at a rate chosen by the user. The CA 6550 and CA 6555 can display the curves R(t)+u(t), i(t) and i(u) directly on the graphic screen. The curves can also be displayed on a PC screen with the DATAVIEW® software.

FILTER FUNCTION

When the measurements are unstable, the FILTER function uses the several Iters included in the instrument to smooth the display of the insulation values so that you can read them more easily and interpret them more quickly.

STOP TEST ON THRESHOLDS (I-lim or di/dt, EARLY-BREAK)

For non-destructive testing applications, the CA 6550 and CA 6555 can be configured to stop the tests if there is an insulation fault, preventing further damage. The limit is defined by a current, I-lim, or a di/dt value. For investigations by sampling parts, a «burning» mode is available which allows the test to be performed whatever the current reached.

REFERENCE TEMPERATURE

The value of an insulation resistance varies according to the temperature at the time of measurement. For precise, reliable monitoring, it is a good idea always to express the result of a measurement at a given temperature of reference. There is a special key to press to make the instrument perform the necessary calculation.

DATAVIEW® SOFTWARE

This software retrieves the data stored in the memory, plots the trend curve R(t), prints the customized test protocols and creates spreadsheet les. DataView® con gures and controls the instrument via an optically-isolated link compatible with USB.

Technical specifications

		CA 6550	CA 6555
Test voltages		**10 kV**	**15 kV**
Test voltages	**Ranges**	500 V: 10 kΩ to 2 TΩ 1,000 V: 10 kΩ to 4 TΩ 2,500 V: 10 kΩ to 10 TΩ 5,000 V: 10 kΩ to 15 TΩ 10,000 V: 10 kΩ to 25 TΩ	
		-	15,000 V: 10 kΩ to 30 TΩ
	Fixed test voltages	500 / 1,000 / 2,500 / 5,000 / 10,000 V	500 / 1,000 / 2,500 / 5,000 / 10,000 / 15,000 V
	Variable test voltages	40 V - 10,000 V 3 presettable voltage values	40 V - 15,000 V 3 presettable voltage values
	Adjustment increment for variable voltages	Variable: 40-10 kV step : 40 V-1 kV: 10 V 1 kV-10 kV: 100 V	Variable: 40-15 kV step: 40 V-1 kV: 10 V 1 kV-15 kV: 100 V
	Ramp mode	3 presettable ramps: start voltage / end voltage / duration	
	Ramp configuration range	40-1,100 V / 500-10,000 V	40-1,100 V / 500-15,000 V
	Step mode	Up to 10 steps (values and duration configurable for each step)	
Voltage measurement after test	-	AC: 0 – 2,500 V / DC: 0 – 4,000 V	
Capacitance measurement	-	0.001-9.999 µF / 10,00 - 19,99 µF	
Leakage current measurement	-	0 - 8 mA	
Discharge after test		Yes / Automatic	
Additional test stop modes	**I-limite**	Programmable: 0.2-5 mA	
	Early-break	di/dt	
	Timer	Up to 99 minutes 59 seconds	
Burning mode	**Burning**	Constant testing	
Ratio calculation	-	PI, DAR, DD	
Calculation of R at ref. T°	-	Yes	
Measurement display Iter	-	3 Iters with 3 possible time-constant	
Graphs on display	-	R(t)+u(t); i(t); i(u);	
Storage	-	256 enregistrements, 80 000 points R, U, I et datation	
Communication	-	Optically-isolated port for USB links	
PC software	-	DataView®	
Power supply	-	NiMH rechargeable batteries, 8x 1.2 V / 4,000 mAh charging by external voltage: 90-260 V 50/60 Hz	
Battery charging	-	Battery charging possible while performing insulation measurements	
Electrical safety	-	1,000 V CAT IV - IEC 61010-1 and IEC 61557 | IEC 61010-031 accessories	
EMC, mechanical protection, altitude	-	EN 61326-1, IP54, 2,000 m	
Dimensions and weight	-	LxWxH: 340 x 300 x 200 mm, 6.2 kg approx. (excluding accessories)	

For order

State at delivery

CA 6550 and CA 6555 delivered with:

- Bag with 2 safety leads 3 m long equipped with an HV crocodile clip at one end (red/blue) and an HV plug at the other end,
- 1 guarded safety lead 3 m long equipped with an HV crocodile clip at one end and an HV plug with rear connection at the other end (black),
- 1 blue lead 0.5 m long with rear connection
- 1 mains power cable 2 m long,
- 1 optical / USB communication cable,
- 1 multilingual specifications label, multilingual safety datasheet,
- 1 USB drive containing the user's manuals and DataView® software.

References

- CA 6550 ..... P01139715
- CA 6555 ..... P01139716

Accessories / Replacement parts

- 3 leads 3 m long with HV croc clips for 10/15 kV ..... P01295517+P01295520+P01295523
- Blue 8 m lead with HV croc clip P01295521
- Red 8 m lead with HV croc clip P01295518
- Black 8 m lead with HV croc clip P01295524
- Blue 15 m lead with HV croc clip P01295522
- Red 15 m lead with HV croc clip P01295519
- Black 15 m lead with HV croc clip P01295525
- 3 blue HV leads 3 m long for 10/15 kV P01295465
- Blue 50 cm HV lead with rear connection P01295526
- 2 test probes (red/black) P01295454Z
- 3 red/blue/black crocodile clips P01103062
- 2P mains lead P01295174
- Carrying bag P01298066
- CA 1821 thermocouple thermometer P01654821
- CA 1246 thermo-hygrometer P01654246

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