

HIGH VOLTAGE INSULATION METERS

by Jacques Botte

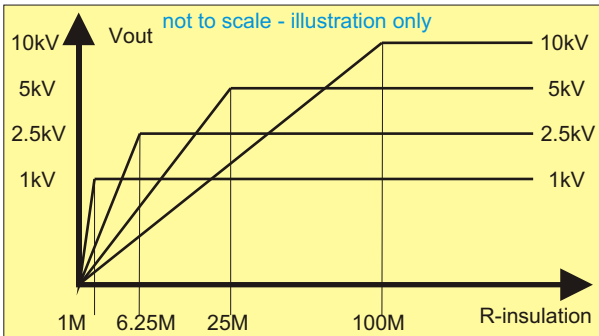
V1.00

20kV, 30kV...AND HIGHER INSULATION MEASUREMENTS USING 10kV DIGITAL H.V.I.M.

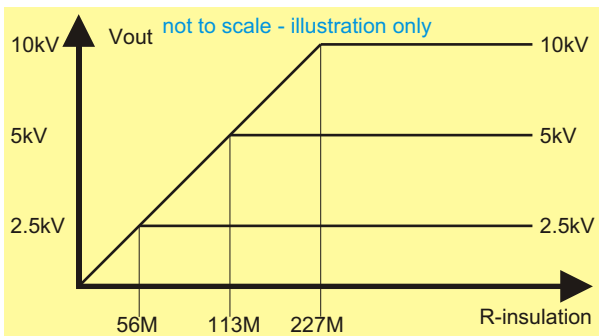
CONSTANT VOLTAGE OUTPUT

The Bargraph must be checked for maximum selected voltage output being shown on the display..

For the **621xIN** instruments, the insulation resistance higher than 200M will give best result (when 10kV selected), specially due to the current limit being a little different from one instrument to an other one. Accuracy will be worse if you read less than a total of 200M (100M on each if two H.V.I.M. are used)



For the **6200IN and 6201IN** instruments, the insulation resistance higher than 454M will give best result (when 10kV selected), specially due to the current limit being a little different from one instrument to an other one. Accuracy will be worse if you read less than a total of 454M (227M on each if two H.V.I.M. are used)



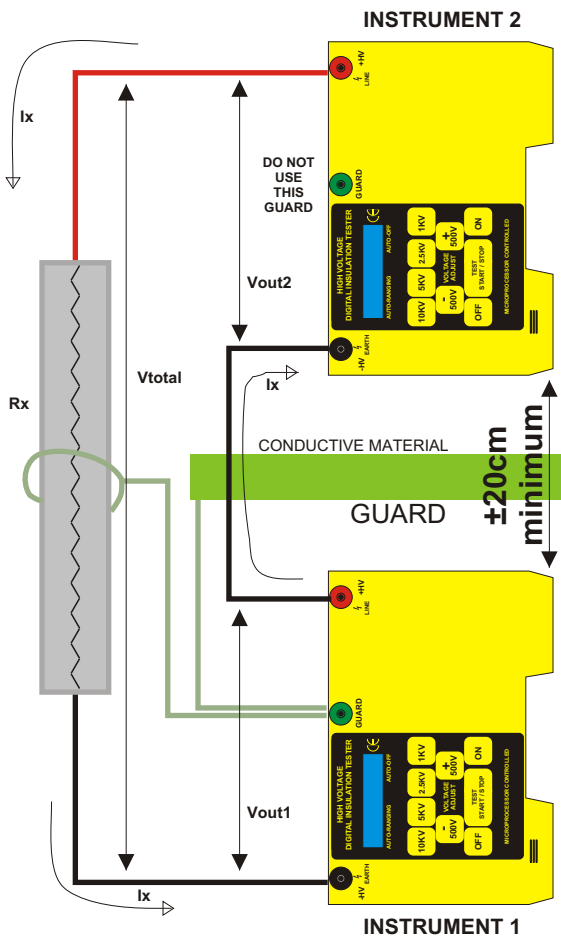
NON DESTRUCTIVE METERS

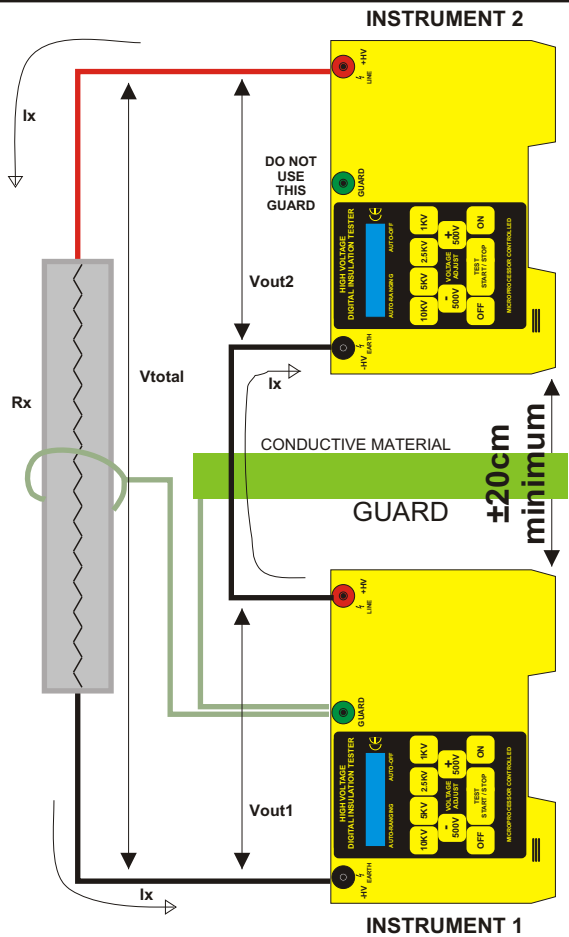
The Insulation Meters are truly non-destructive type. However, semiconductors devices, specially MOS type are sensitive to static discharge.

Please keep in mind that High voltage charges are around the testers.

Verify what type of material you are about to test, and what is in the proximity of the test.

The material must be able to sustain the applied voltage.





START THEM TOGETHER

It is recommended to start all the testers at the same time, so that they stress the insulation together. This configuration also requires voltage regulation from each instrument.

DO NOT CONNECT G2

Connect only the guard of the first instrument. The other guard is at a potential Vout1 away and it is not recommended to use the second guard.

ACCURACY IS WORSE

When connecting instruments like shown, the accuracy get worse. For example the 6211IN has it's worst accuracy of ±5% of FS (the scale on which it is measuring now). Two 6211IN in serie will give at least ±10% of FS accuracy.

Rx = Insulation Resistance

$$R_x = \frac{V_{total}}{I_x}$$

$$V_{total} = V_{out1} + V_{out2}$$

$$R_x = \frac{V_{out1} + V_{out2}}{I_x}$$

Current going through insulation (Ix) is the same as current going through Instrument 1 and Instrument 2.

$$\text{Instrument 1 indicates} = \frac{V_{out1}}{I_x}$$

$$\text{Instrument 2 indicates} = \frac{V_{out2}}{I_x}$$

$$R_x = \frac{V_{out1}}{I_x} + \frac{V_{out2}}{I_x}$$

$$R_x = \text{Display 1} + \text{Display 2}$$

AT CURRENT LIMIT

During current limit, the preset output voltage is not reached. However, the insulation resistance is still the total of each display

COLLECT LEAKAGE WITH G1

As shown, you should arrange to collect any possible leakage current with the guard connected to the first instrument.

Read application note # 2

USE THE GUARD - IT'S BETTER !

YOUR COMMENTS ARE IMPORTANT TO US

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We would like your comments, critics and questions.

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