



## Capacitance & Tan Delta Bridge



### Application :

**Power Systems, HT Transformers, Motors, Generators  
Bushings, Power Cables, Power Capacitors, High Voltage Laboratories.**

### Introduction :

Electrical properties of insulating systems changes due to age and continuous electrical stress. By measuring electrical properties such as Capacitance and Tan Delta regularly it is possible to ensure the operational reliability of HV insulation systems and to avoid costly breakdowns. This is particularly important for high voltage bushings, power transformers, generator, power capacitors, HT Cables etc.

SIVA Capacitance & Tan Delta test set comprises of C & Tan Delta Bridge model MLS 11-D, high voltage power supply model HLS-12 with built in standard Capacitor and set of cables.

The compact design of the bridge uses the principle of three winding differential transformer on a high permeability  $\mu$  metal core. The bridge is contained in a sturdy metallic housing with  $\mu$  metal lining which shield it from external electromagnetic and electrostatic influences, built in battery powered null indicator makes the bridge suitable for operation in workshop, factories, high voltage sub-stations, Switch yard etc.

The high voltage power supply model HLS-12 is provided with built in standard capacitor. It is suitable for both grounded as well as ungrounded Objects.

# Specifications

| PARAMETER   | RANGE              | RESOLUTION        | ACCURACY  |
|-------------|--------------------|-------------------|---|
| CAPACITANCE | 1000pF<br>10000pF  | 0.01pF<br>1pF     | $\pm 0.2\%$ of the reading $\pm 1$ pF<br>$\pm 0.2\%$ of the reading $\pm 10$ pF |
| TAN DELTA   | 0 - 0.1<br>0.1 - 1 | 0.00001<br>0.0001 | $\pm 1.0\%$ of the rdg. $\pm 0.00015$<br>$\pm 1.0\%$ of the rdg. $\pm 0.0015$   |
| VOLTAGE     | 0 - 12 KVAC        | 0.01 KV           | $\pm 1\%$ of the rdg. $\pm 1$ digit   |
| CURRENT     | 0 - 100 mA         | 1mA               | $\pm 2\%$ of the rdg. $\pm 1$ digit   |

**Test Voltage** 0 to 12KV AC

**Rated Current** 100mA continuous 200mA short term

**Output Frequency** 50Hz (Lines Frequency)

**Switch for three different types measurement**

**1. UST-** Ungrounded Specimen test.

This mode is used when object is not grounded.

This test provides more accurate results.

**2. GST -** Grounded Specimen test.

This mode is used when one terminal of object under test is permanently grounded.

**3. GSTg -** Grounded specimen test with Guard.

This mode is used for measuring stray capacitances and separating them from basic measurement in GST mode.

**Indication :** 3 ½ Digital panel meter for Voltage & Current.

**Standard Capacitor :** 100pF / 200pF, 12KV built-in.

**Input Voltage :** 230VAC  $\pm 10\%$ , Single Phase, 50Hz.

**Safety Features :**

- \* Zero start control.
- \* Open ground indicating lamp with double ground connection.
- \* External Interlock
- \* HT cut off on overload.
- \* HT ON and Supply ON Indication.
- \* All operating controls at earth potential.
- \* Necessary terminals & Sockets for connection to Bridge.

**Null Detector**

Built in battery operated electronic Null Detector.

This type of Null detector is most suitable for balancing of the bridge. It gives high sensitivity and accuracy for most of the applications and it is very user friendly.

Phase sensitivity Null Detector can be given in place of electronic Null detector on request.

**Interference Cancellation Unit.(ICU)**

The C & Tan delta Bridge has been specially shielded with u metal sheets to avoid the effect to external interferences. This makes the measurement accurate in both indoor and out door applications particularly in switch yards.

Phase reversal switch provided in the HV power supply effectively cancels interference/pick up by the object under test in energized environment.

For situation where the pick up by the bridge is excessive and controlled by built-in u metal shielding (rare cases), a separate three level interference suppression unit can also be given with separate C & Tan delta adjustments.

Power Supply Size : 535 X 455 X 325mm

Weight : 30Kg (approx)

C & Tan Delta Bridge : 345 X 345 X 195

Weight : 12Kg (approx)

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