

# KPM 3 Phase LA Characteristic Tester (KPM LA-103+)



**KPM's 3 Ph LA Characteristic Tester (KPM LA-103+)** is the special instrument used to detect the electrical properties of Lightning Arrestors (LA/MOSA) of all the three phases .

## Technical Parameters

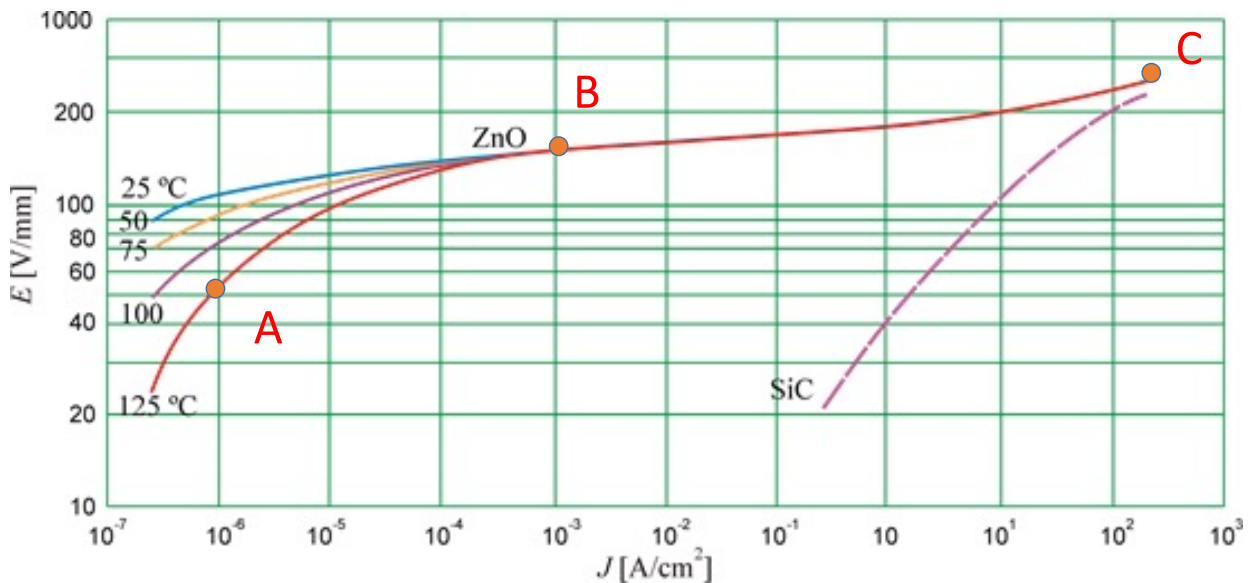
- Range of reference voltage input (peak):20V-250V  $\pm$ (reading $\times$ 2% + 5digits)
- Measurement range of full leakage current (peak):100uA-10mA  $\pm$ (reading $\times$ 2% + 5 digits)
- Measurement range of resistive current (peak): 100uA-10mA  $\pm$ (reading $\times$ 2% + 5 digits) (secondary method without interphase interference)
- Measurement range of capacitive current (peak): 100uA-10mA  $\pm$ (reading $\times$ 2% + 5 digits)
- Current harmonic measurement accuracy:  $\pm$  (reading  $\times$  10% + 10uA)
- Current channel input resistance:  $\leq 2\Omega$

- Electric field strength input range: 30kV/m~300kV/m, total harmonic content <30%
- Electric field strength measurement accuracy:  $\pm$  (reading  $\times$  10%)
- Measurement range of angle: 0-360°
- Power consumption: 4W
- Power supply: DC12V
- Lithium battery capacity: 10000mAh
- Wireless transmission distance: 400Mts approx.

## Product Features

- Large-screen LCD display ,easy to use.
  - Using high-precision sampling and processing circuits, advanced Fourier harmonic analysis techniques to make data reliable .
  - Laboratory Testing ( Using external voltage source )
  - Wired Voltage Synchronisation (online testing)
  - Wireless Voltage Synchronisation using Transmitter ( online testing
  - Antenna (EM ) Voltage Synchronisation (online testing)
  - Non Voltage Mode (online testing)
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- ❖ **User friendly**
  - ❖ **Direct & Wireless capture of input voltage signals.**
  - ❖ **Measures below critical parameters**
    - 1) Watt Loss
    - 2) Watt Loss Angle
    - 3) Total Resistive Leakage Current
    - 4) 3rd Harmonic Leakage Current

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### Product Advantages

- Prevent arrester failures by indicating and replacing arresters before breakdown.
- Increase the safety for the utility/maintenance staff.
- Avoid disturbances in the electric power supply.
- Reduce the risk for damages to other equipment due to arrester failures, for instance transformer bushings.

### Understanding LA ( MOSA )

The primary function of a zinc oxide surge arrester is to protect the power equipment from over voltages and to absorb electrical energy resulting from lightning or switching surges and from temporary over voltages.

The arrester is designed in such a way that the applied operating voltage gets located around point “A”. This results in a continuous resistive current of few micro amps flowing through the resistor elements.

Under overvoltage condition, the voltage increases and shifts operating point momentarily for overvoltage duration to point near “B” . This results in a resistive current of few milliamperes flowing through the resistor elements.

As soon as the overvoltage disappears, the operating point will shift back to “A”. In the event of transient switching or lightning over voltages, the operating point will shift to portion “C”.



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## LA testing & Leakage Current :

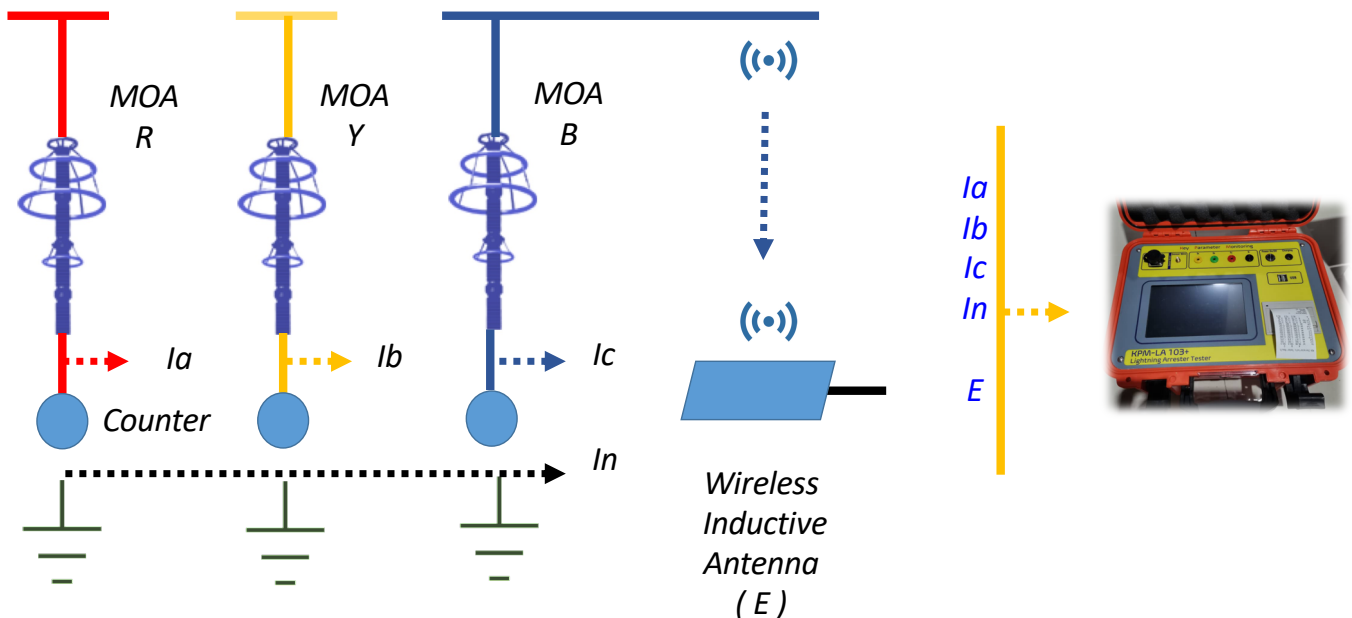
The measurement of total leakage current flowing through an LA under normal conditions is also used as one of the health monitoring techniques. However, the total leakage current measurement does not indicate the severity of degradation of Zinc Oxide elements as the resistive current ( $I_r$ ) is only 15-25% of the total leakage current. Hence, a sharp increase in resistive current due to degradation/ageing of Zinc Oxide blocks does not affect the total leakage current considerably.

The higher resistive leakage current may ultimately bring the LA to thermal instability and may result in complete failure/breakdown of the Arrester. Hence, the resistive leakage current is the true indicator of health of an LA in service.

### Package List :

1. KPM LA-103+	1
2. Current, voltage input line	3
3. Power Line	1
4. Grounding line	1
5. Manual	1

## Connection Diagram



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