

Arrester Leak Tester

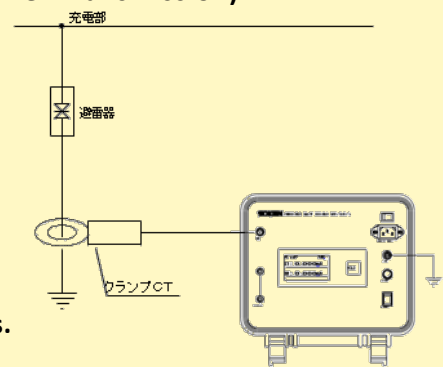
DAC-LAS-3A



Application: Quality Evaluation of Gapless Arresters
(Gapless Metal Oxide Surge Arrester for AC Power Transmission)

Simple, Safe, and Fast Diagnosis of Arresters

- Easy diagnosis by simply clamping to a ground wire.
- Supports measurement of Total leakage current, Resistive component from leakage current, and third harmonics.
- Compact, lightweight design with built-in battery. (3kg)
- Portable design ideal for on-site testing.
- Safe diagnosis without getting close to high-voltage sections.
- Quick and efficient operation.



■ Importance of surge arrester diagnostics

Generally, surge arresters (also known as lightning arresters) are installed as protection devices in a power transmission and distribution facility. The Zinc Oxide elements embedded in gapless arresters have the capability to instantly direct surge currents caused by lightning strikes to the ground. These surge currents can reach several kA, and the heat generated by them is immense. As the internal elements deteriorate due to this heat, the arrester may no longer perform its protective function properly, increasing the risk of electrical facility failure or accidents. By regularly inspecting the arresters and detecting degradation early, the appropriate timing for maintenance or replacement can be determined, helping to protect electrical facility.

*There are two main types of arresters: gap-type and gapless type. In recent years, gapless-type arresters, which do not have an air gap and use zinc oxide elements (ZnO), have become the mainstream. DAC-LAS-3A is a device for gapless arrester diagnosis.

■ Surge Arrester Assessment Method

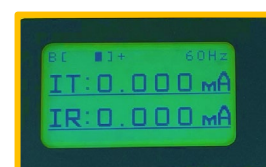
Surge arresters contain elements through which a small leakage current constantly flows. This leakage current consists of a resistive current in phase with the charging voltage, and a capacitive current that is 90° out of phase with the charging current. As the insulation resistance of the surge arrester decreases due to heat generated by surge currents from lightning strikes, the resistive current (IR) in the leakage current increases. DAC-LAS-3A can measure the total leakage current and resistive current (IR) of the arrester by simply clamping the arrester's grounding line with a CT. Typically, measuring resistive current requires measuring the system voltage, which involves approaching high-voltage areas and presents safety risks. DAC-LAS-3A does not need to approach high-voltage areas, enabling safe diagnostics.

Furthermore, by switching modes, DAC-LAS-3A can also evaluate the third harmonic current ($I3$), providing a comprehensive assessment of the surge arrester's condition.

Detected Current	Explanation
IT (Total Leakage Current)	The total leakage current flowing through the grounding line is displayed. Most of the total leakage current is capacitive current (Ic), with a small amount of resistive current (IR) indicating signs of deterioration.
IR (Resistive Leakage Current)	When the insulation resistance of an arrester decreases, the resistive current (IR) increases. Monitoring the IR trend helps evaluate the condition of the arrester. (IEC60099-5:A3)
$I3$ (Third harmonic Content)	As an arrester deteriorates, the point of rapid current increase shifts to a higher current, and third harmonic current ($I3$) rises. Monitoring the $I3$ trend helps evaluate the arrester's condition. (IEC60099-5:B1)

■ Specifications

Test Object	Gapless arrester (Zinc Oxide varistor type lightning arrester)	
Measurement Range	0.3mA, 1mA, 3mA (Automatically selected based on the total leakage current)	
Measurement Current Range	0.3mA Range	0.015mA – 0.315mA
	1mA Range	0.05mA – 1.050mA
	3mA Range	0.15mA – 3.15mA
Accuracy	±5% F.S.	
Frequency	50/60Hz (Auto switch)	
Power	AC100V - 240V±10% 50/60Hz, or Rechargeable LiFePO4 Polymer Battery DC 6.6V 1800mAh 12Wh	
Battery usage time and charging time	Continuous measurement: Approx. 2 hours Chargin time: Approx. 4 hours	
Clamp CT	Diameter 40mm (Maximum aperture size 28mm) With Permalloy shield case	
Product size	W272×H128×D250 (mm)	
Weight	Main unit: Approx. 3kg Accessories in bag: Approx. 1 kg	
Standard accessory	Clamp CT (with 5m lead), Permalloy shield case, CHECK terminal cable, AC Cord, Ground cable, Spare fuse (2A), Accessory bag	



IR Mode Screen



Easy to carry
Portable design

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ISO 9001:2015
HEAD OFFICE/FACTORY

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