ndb

Advanced and Innovative Solutions

AE-150™

PD & Hot Spots Detection and Localization System for Power Transformers

The AE-150™ is designed to detect and localize Partial Discharge activity by correlating acoustic and electric sensors' data. The AE-150™ has many acquisition modes, each used for detecting and locating Partial Discharge activity in a transformer. The AE-150™ unit is mounted on the transformer tank using its powerful magnets that also hold four acoustic sensors. Acquired data is sent to Mirador-Tx software where all advanced positioning functions are implemented. This cutting edge software allows easy data interpretation, reporting and monitoring.

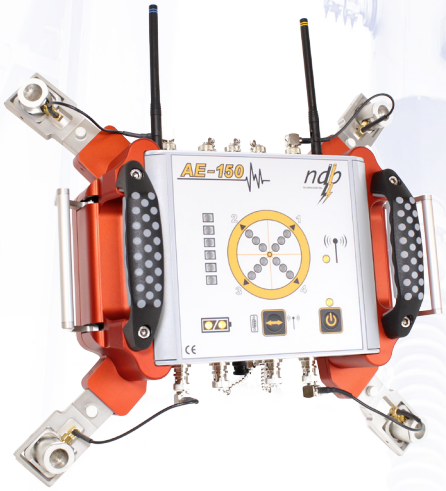
ADVANTAGES

- Easy to install and use
- Portable, battery-operated, wireless data transfer, weatherproof
- Mirador-Tx software allows automatic configuration and 3D positioning
- Simultaneous processing of AE and PD signals
- NEW: Monitoring Feature!

APPLICATION AND OPERATION

Power transformers are critical to transmission and distribution substations. In fact, losing a unit can have major financial consequences. To protect your investment, use Acoustic Emission Testing. This technique is superior to electric methods for on-site testing. The AE-150™ detects and locates Partial Discharges & Hot Spots in power transformers by analyzing ultrasonic waves produced by electrical insulation breakdowns or high heat. The ultrasonic waves travel through the oil and strike the transformer's tank, providing the AE-150™ the signals needed to locate the flaw. The instrument is installed on the transformer using the integrated magnetic mounting system. This features provides an easy way of moving the AE-150™ to survey the entire transformer. The remote user interface and the RF communication system allow safe operation of the unit in any outdoor conditions.

Developed in partnership with Hydro-Quebec and I.R.E.Q. laboratory, the AE-150™ brings a high level of acoustic and electrical expertise in an easy-to-use and efficient package.



AE-150™

UHF Antenna for AE-150

ndb Technologies inc. • 1405 St-Jean-Baptiste, office 111 • Quebec (QC) G2E 5K2 - Canada • Tel: 1(418)877-7701 Fax: 1(418)877-7787
Email: mkt@ndbtech.com

GENERAL TECHNICAL SPECIFICATIONS	
Overall dimensions (W x H x D)	40 x 37 x 14 cm (15.6 x 14.6 x 5.5 inches) 40 x 44 x 14 cm (15.6 x 17.4 x 5.5 inches), with antennas
Weight	5.4 kg (12 lbs)
ACOUSTIC TECHNICAL SPECIFICATIONS	
Number of Channels	4
Bandwidth	35 kHz to 300 kHz
Sampling Frequency	3 MHz
Optional Filtering	Highpass 6th order at 100 kHz
Amplitude Resolution	12 bits
Dynamic Range	120 dB
Input Range	500 mVpp max.
Drive (for integrated pre-amplification)	0V, 5V (30 mA) or 24V (5 mA)
Sensitivity	6 μV
PARTIAL DISCHARGE TECHNICAL SPECIFICATIONS	
Number of Channels	1
Bandwidth	5 MHz to 300 MHz
Sampling Frequency	48 MHz
Input Range	1 Vrms
Sensitivity	100 μVrms
Dynamic Range	80 dB
POWER SUPPLY TECHNICAL SPECIFICATIONS	
Battery autonomy	8 hours or more
DC-in Voltage	12V to 15V, 2.5A
ENVIRONMENTAL TECHNICAL SPECIFICATIONS	
Operating Temperature (charging)	-20°C to 40°C (-4°F to 104°F)
Operating Temperature (not charging)	-20°C to 55°C (-4°F to 133°F)
Storage Temperature	-20°C to 55°C (-4°F to 133°F)
IP Rating	Designed to meet IP66

COMPATIBILITY

The AE-150™ is compatible with our conventional UHF antenna™ for straight type valves, Flexible UHF antenna™ for non-straight type valves, and HFCT™ clamps for ground returns.

AE-150 kit in its transportation case

UHF antenna with flances in its transportation case

UHF antenna

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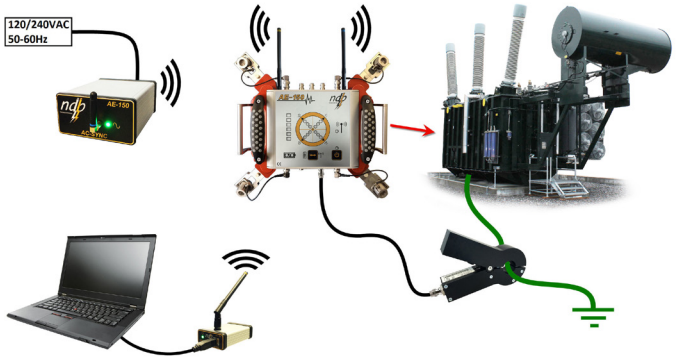
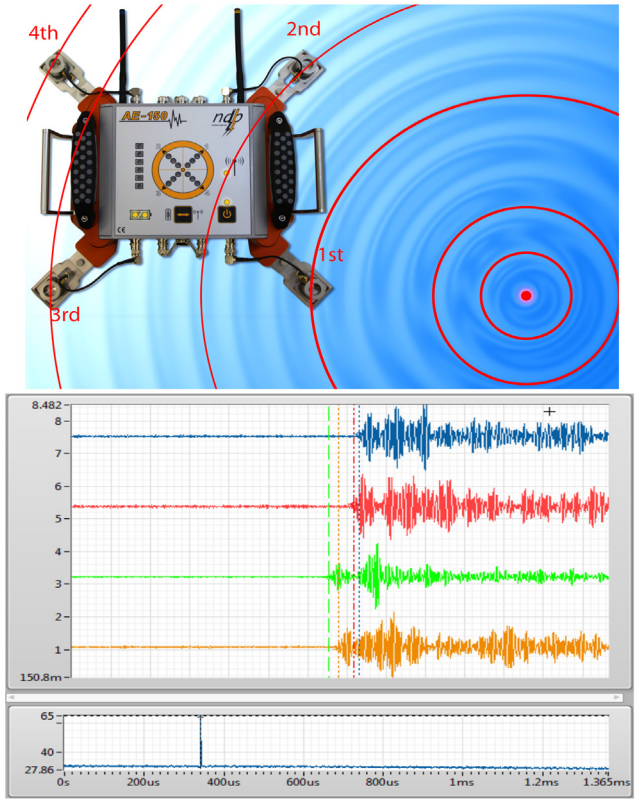


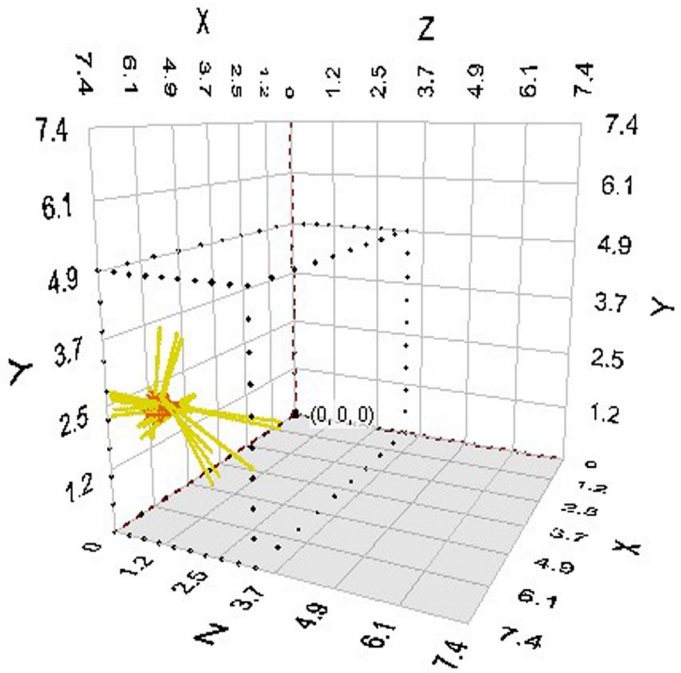
INSTALLATION

The AE-150™ is installed on the transformer's tank using its powerful magnets. The transformer dimensions are measured and noted in the PC software along with the AE-150™ position. The instrument communicates wirelessly with a PC computer. All commands and data analysis are done on the PC.



ACOUSTIC AND ELECTRIC

While performing the test, all four acoustic sensors and electric sensor will receive a signal with from the partial discharge source. The software algorithms will make the correlation between those signals by using the arriving delays in order to draw a vector in the tank's representation.



LOCALIZATION

After performing the test at multiple localizations on the tank, a few vectors will start to cross. This crossing section represents the partial discharge localization position.

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