

HTBX-H Sweep Frequency Response Analyzer (FRA Test Set)



I. Introduction

HTBX-H tester based on the measurement of the windings characteristic parameters inside the transformer, the tester using the world's developed countries sound internal fault frequency response analysis (FRA) method, able to make an accurate internal transformer fault judgment.

After the completion of the design and manufacture transformers, coils and its internal structure to be finalized, therefore a transformer coil winding, if the voltage level, method of winding are the same, each coil corresponding parameters (C_i , L_i) is determined. Thus the frequency domain response characteristics of each coil also will determine, among the corresponding three-phase coil has a comparable frequency spectrum.

It occurs inter-turn, phase short circuit during the test or collision during transport, causing the coil relative displacement, and during operation under short circuit and fault conditions due to the tension caused by the electromagnetic, coil is deformed, it will make the distribution parameters of the transformer windings changes. Thus influent and change the existing frequency domain transformer frequency response feature, that frequency response amplitude changes occur and resonance frequency shift, etc. HTBX-H applies to the internal structure of fault detection 63kV ~ 500kV power transformers.

FRA quantization process transformer internal winding parameters response changes in the different frequency domain, according to the value of the change magnitude, frequency response magnitude change, regional and response trends, to judge the transformer internal windings degree of change, in turn, can determine whether the transformer has been severely damaged, need to overhaul measurement.

For the running transformer, regardless of whether there is a saved frequency domain feature picture in the past, by comparison the difference between fingerprints of fault transformer coil can also judge the degree of fault. Of course, if you save a set of transformer windings original characteristic graph easier for the operation of transformers, maintenance and inspection after the accident analysis and provide a strong basis more accurate.

FRA from the laptop and chip microprocessor precision measurement systems, compact, easy to operate, with comprehensive test analysis function.

II.Features

- 1.Use high-speed, high integration microprocessor to sample and control.
- 2.Use USB to connect the notebook PC and device.
- 3.Communication wireless Bluetooth interface between the laptop and instruments.
- 4.Hardware cassette mechanism adopts DDS (from America), can correctly detect the breakdown :distortion, swell, shift, tilt, inter-turn short circuit deformation and contacting short circuit inter-phase.

- 5.High-speed, dual channel, 16 bit A/D sampling (the wave from curve will change obviously if change the tapping switch during the field tests.).
 - 6.The software can adjust the output signal range, the maximum amplitude peak \pm 10V.
 - 7.The computer automatically generating the test results to be Word document.
 - 8.Use precision, high stability components, the same phase repeat test, measurement repetition rate >99.5%.
 - 9.Finished circuit boards, surface specially treatment with anti-water pollution and harmful gases.
 - 10.The device with two measurement system: linear scan and sectional scan.
 - 11.Amplitude-frequency characteristic comply the national technical specifications.
 - 12.Test data automatic analysis system, horizontal compare the similarity of A,B ,C, the results as below:
 - ①conformance is very good
 - ②conformance is good
 - ③conformance is bad
 - ④conformance is very bad
- Vertical compare A-A、 B-B、 C-C, obtain the original data to compare the winding deformation with the test data in the same phase, the results as below:
- ①normal
 - ②slight deformation
 - ③moderate deformation
 - ④serious deformation
- 13.Automatically generating Word document, convenient for customers to save and print.

III. Parameters

Scan mode

Linear scan distribution	Scan measurement range	(1kHz)-(2MHz), 2000 scan frequency point, resolution:1kHz
Sectional scan measurement distribution	Scan measurement range	(0.5kHz)~(1MHz), 2000 scan frequency point
		(0.5kHz)~(10kHz)
		(10kHz)~(100kHz)
		(100kHz)~(500kHz)
		(500kHz)~(1000kHz)

Other parameters

Amplitude measurement range	(-100dB)~(+20dB)
Amplitude measurement accuracy	0.1dB
Scan frequency accuracy	<0.01%
Signal input impedance	1M Ω
Signal output impedance	50 Ω
Co-phase repetitive rate	99.5%
Instrument dimension	300x340x120mm ³
Case dimension	310x400x330mm ³
Weight	10kg

IV. Accessory

