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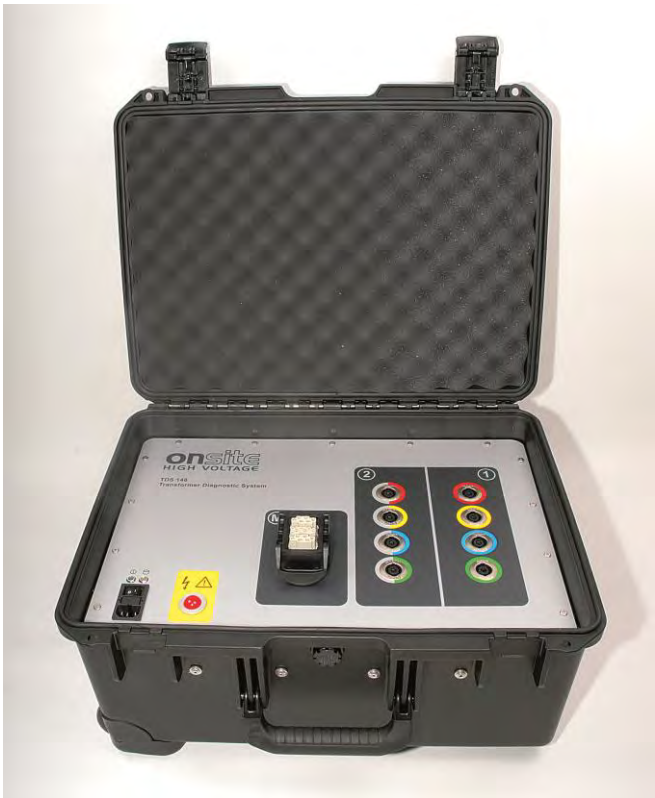
TDS 146

Diagnostic System for Power Transformers with on-load Tap Changer



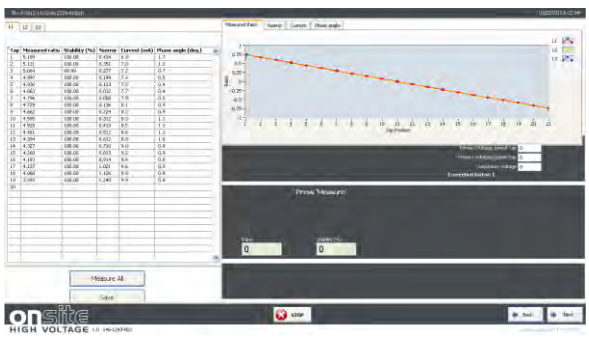
Efficient, integrated diagnostics, comprehensive results

- ✓ All-in-One automatic solution for maintenance services
- ✓ Advanced on-site diagnosis of power transformers with on-load tap changer
- ✓ Early pre-failure detection of major degradation mechanisms of different types of OLTC
- ✓ Sensitive recognition of winding defects inside the transformer tank
- ✓ Perfect solution to support condition assessment of different types of transformers

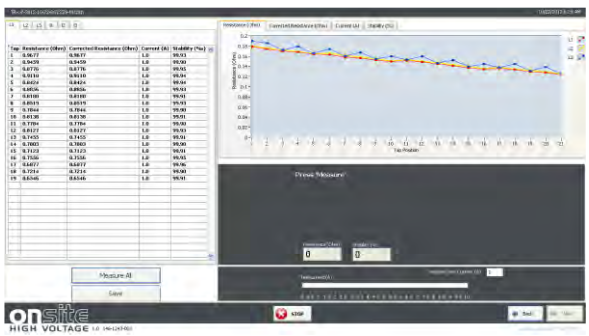
Technical Data TDS 146

Max. Resistance meas. max. test current	10 A DC, 3 phase and 1 phase
Winding resistance measurement range	100 mΩ - 100 Ω
Winding resistance measurement acc.	1 mΩ
Dynamic OLTC resistance meas. range	100 mΩ - 100 Ω
Dynamic OLTC resistance meas. acc.	5 mΩ
Transformer turn ratio meas. test voltage	20 V AC, 50 / 60 Hz
Transformer turn ratio meas. range	1 : 1 to 1 : 100
Transformer turn ratio meas. accuracy	ratio 0.1 %, current 1 mA, phase 0.5°
Transformer turn ratio excitation current measurement range	0 - 300 mA
Switch time contact timing measurement accuracy	1 ms
Switch time contact timing measurement auxiliary voltage	Integrated
Drive motor power meas. voltage range	0-400 VAC, 50 / 60 Hz
Drive motor power meas. current input	current clamp, 10 V
Drive motor power meas. accuracy	1 W
Drive axis rotation meas. range	0 - 360°
Drive axis rotation meas. accuracy	0.5°
Transformer connection	Auto-configuration by relay-matrix
OLTC control	2x NO contact, 8A 400 V
Operating temperature range	0°C - 50°C
Communication with laptop	Wireless IEEE 802.11g
Supply voltage	Single phase AC 110 – 240 V 48 – 63 Hz 400 VA
Net weight	approx. 9.7 kg
Dimension	W 570 x D 450 mm x H 270 mm

improvements to specifications are subject to change without notice



Screen shot turn ratio result



Screen shot dynamic coil resistance result

Applications

- Capable of performing all necessary on-site tests and measurements
- Diagnosis of all types of power transformers for periodic and condition-based maintenance
- In line with:
  ANSI / IEEE C57.12.90-1987,
  IEEE Std 62-1995,
  IEEE Std C57.12.37-2006,
  IEEE Std C57.140-2006,

Features

- Evaluation of tap changer contact condition by means of:
  - Dynamic resistance measurement (DRM)
  - Contactor switching time measurement
  - Position measurement OLTC drive axis (for rotor-type OLTC's)
  - OLTC drive mechanism motor power measurement
- Evaluation of irregularities of the transformer windings by means of:
  - Transformer turn ratio measurement)
  - Static DC winding resistance measurement
- Comparison of OLTC switching times, transformer turn ratio and static winding resistance between all tap positions and phases
- Portable test system, compact design and low weight
- OLTC diagnostic testing generates a comprehensive condition assessment report
- One-time connection setup for all measurements.
- Easy and fully automated all-phase test procedure
- Highly efficient bipolar pulse demagnetizing function
- User friendly user interface. System is operated using a standard Windows laptop
- No storage limitation for measurement reports

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