

NEW PRODUCTS

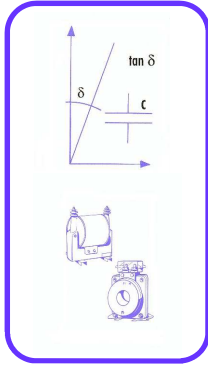
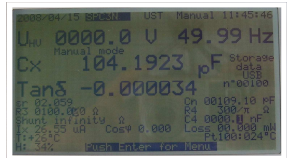
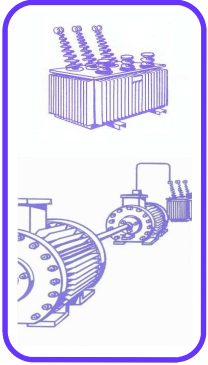


**TESTS ON DIELECTRIC OIL
COMPLETE AUTONOMOUS MEASURING SYSTEMS
TAN δ, CAPACITANCE, PERMITTIVITY, RESISTIVITY...
WITH VETTINER SPC, AFP & SCL RANGES**



NEW : SPC 300

NEW : AFP 300



FUNCTION

Front Face presentation of SPC 300 same than above SPC 3N above presentation

- Very high precision measuring systems for measurement of capacitance, permittivity and dielectric dissipation factor (Tan δ) with Vettiner measuring Schering Bridge or digital loss factor analyzer according to customer preference (Please refer to detailed specification of corresponding measuring instruments)
- Measure of resistivity according to IEC 247 & NFC 27-210
- Measures from some hundred Volts up to over 2 kV or 2.5 kV or 10 kV or customized according to customer expectation.
- Oil test cell built-in autonomous heater allowing tests at ambient temperature up to 120°C or 150°C or customized also according to customer expectation. (Please refer to detailed specification of corresponding Vettiner cells/equipments)
- Vettiner oil test cell range designed too in accordance with VDE specifications and under CIGRE recommendations

STANDARDS

- Conformity to IEC 250, IEC 247 NFC 27-210...

QUALITY

- of Manpower
- of Know-how
- of Procedures
- of Components

APPLICATION

- Measurement of status of new and degree of ageing of dielectric liquid insulants used in high and medium voltage applications,
- Manufacturers/repairers of transformers, HV cables, equipments with oil...
- Production, transmission and distribution of energy on national grid networks or local (including internal networks of industries)
- All Oil/Petroleum producers

ACCURACY

- High accuracy of measurements
- Stability of components

VETTINER OIL TESTING SYSTEM BENEFITS

- Accordance with international standards & specs
- Operating simplicity & Fast measurement
- Voltage control from measuring equipment front face
- Easy & convenient heating test cell as well as cleaning
- Very complete LCD display & Total safety of operator
- Reliability & Reduced maintenance
- Easy check of calibration
- Convenient and simple calibration
- RS 232 interface for PC or printer
- Test results storage possible on USB key
- Test set presentation according to customer expectation : Portable unit or rack case for desk or for laboratory mobile unit...



Ex. Mobile laboratory application

CALIBRATION

- Primary Standards linked to LNE
- Tracing

WARRANTY

1 YEAR

AFTER SALES SERVICE

10 YEARS



TESTS ON DIELECTRIC OIL COMPLETE AUTONOMOUS MEASURING SYSTEMS

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1. DEFINE YOUR NEED & YOUR EXPECTATION

1. Purpose of test set to define measuring performances & test cell	
Simple fast checking of oil quality level	→ Measuring instrument to select inside AFP range
or high investigation of dielectric oil performances	→ Measuring instrument to select inside SPC range
or between (priority to speed of tests, accuracy, else?)	→ AFP range for speed, SPC range for very high accuracy...
IEC/VDE/... standards to follow	→ 2 kV test cell to use
ASTM/ US standards to follow	→ 10 kV test cell to use
Custom design test cell for specific tests	→ Ex. Special dimensions, continuous oil flow test...
2. Position of test set: to define test set presentation	
Fixed position, ex. installation on a table	→ Presentation in rack case
or on a trolley to be mobile inside a factory	→ Presentation on rolling trolley (ex. See pictures)
or portable to be used on field ?	→ Presentation in proof portable cases
3. Heating of oil/test cell to define heating system	
Autonomous heating system	→ Convenient specific autonomous heater or self-heating cell
or will you prefer to use eventually one oven ?	→ Use of your existing oven or eventual Vettiner supply ?
4. Computerization of tests (Manual Schering bridge cannot be used)	
Simple tests results recorded on computer	→ Permanent connection to PC or/ & thanks to USB Key
or complete drive of test cycle thanks to a computer	→ Permanent connection to PC & adequate software
or no computerization concerned ?	→ No constraint regarding choice of equipments

2. SELECTION OF MEASURING INSTRUMENT

PRODUCTS	SPC 1 (Manual)	SPC 2 (Half Auto)	SPC2000(Auto)	SPC 3N (Auto) & NEW SPC 300	AFP 1000 (Auto)	AFP 2000 (Auto)	AFP 3000 (Auto) & NEW AFP 300
• Voltage	• Display • Range • Resolution • Accuracy	• N.A. • N.A. • N.A. • N.A.	• 3 digits • 0 - 999 kV • 0.1 kV • 1.5 % rdg ± 5 digits	• 4 digits • 0 - 999.9 kV • 1 Volt • 1.0 % rdg ± 1 digit	• 5 digits • 0 - 999.99 kV 4.2.5 kV • 0.1 Volt • 0.5 % rdg ± 1 digit	• 4 digits • 0 - 2.5 kV or 0 - 15 kV • 1 Volt • 1.0 % rdg ± 1 digit	• 5 digits • 0 - 15 kV 4.2.5 kV • 0.1 Volt • 0.5 % rdg ± 5 digits
• Current	• Display • Range • Resolution • Accuracy	• N.A. • N.A. • N.A. • N.A.	• 3 digits • 0-6A (+with ext. shunt) • 1 μ A • 1.0 % rdg ± 1 digit	• 4 digits • 0-6A (+with ext. shunt) • 0.1 μ A & 0.1 μ A • 0.5 % rdg ± 1 digit	• 3 digits • 0 - 9.99 A (instrument) • 1 mA • 1.0 % rdg ± 1 digit	• 3 digits • 0 - 9.99 A (instrument) • 1 mA • 1.0 % rdg ± 1 digit	• 4 digits • 0 - 9.99 A (instrument) • 0.1 mA 4.2.2 μA • 0.5 % rdg ± 5 digits
• Frequency	• Display • Range • Resolution • Accuracy	• N.A. • N.A. • N.A. • N.A.	• Rated freq. (ex.50Hz) • 4 digits • 45.00 - 65.00 Hz • 0.1 Hz • 0.1 % rdg ± 1 digit	• 4 digits • 45.00 - 65.00 Hz • 0.01 Hz • 0.01%rdg±1 digit	• 3 digits • 45.00 - 65.0 Hz • 0.1 Hz • 0.1 % rdg ± 1 digit	• 4 digits • 45.00 - 65.00 Hz • 0.01 Hz • 0.01%rdg±1 digit	• 4 digits • 45.00 - 65.00 Hz • 0.01 Hz • 0.01 % rdg ± 1 digit
• Capacitance	• Display • Range • Resolution • Accuracy	• On knobs : 5 digits • 0.016 Cn to 80 000 Cn • 0.01 pF • 0.02/0.05%rdg±1digit	• 5 digits • 0.016 Cn to 80 000 Cn • 0.01 pF • 0.1 % rdg ± 1 digit	• 5 digits • 0 to 80 000 Cn • 0.01 pF • 0.02/0.05% rdg ± 1 digit	• 4 digits • 0-9.999 μ F (instrument) • 0.01 pF • 0.5 % reading ± 1 digit	• 4 digits • 0 - 9.999 μ F (instrument) • 0.01 pF • 0.5 % rdg ± 1 digit	• 5 digits • 0 - 9.9999 μ (instrument) • 0.01 pF • 0.2 % rdg ± 1 digit
• Tan delta (Tan δ)	• Display • Range • Resolution • Accuracy	• On knobs : 4 digits • 1.10-6 to 100.0 % • 1.10-6 (=1 ppm) • 0.5 % rdg ± 1.10-5	• 4 digits • 1.10-6 to 100.0 % • 1.10-6 (=1 ppm) • ≤ 0.5 % rdg ± 1.10-5	• 7 digits • 1.10-6 to 100.0.(or+) • 1.10-6 (=1 ppm) • ≤ 0.5 % rdg ± 1.10-5	• 4 digits • 1.10-4 to 100.0 % • 1.10-4 (=100 ppm) • 1.0 % rdg ± 1.10-3	• 4 digits • 1.10-4 to 100.0 % • 1.10-4 (=100 ppm) • 1.0 % rdg ± 5.10-4	• 5 digits • 1.10-5 to 100.0 % • 1.10-5 (=10 ppm) • 1.0 % rdg ± 2.10-4
• Power factor (cos ϕ)	• Display • Range • Resolution • Accuracy	• N.A. • N.A. • N.A. • N.A.	• 4 digits • 0 - 1.000 • 0.001 • 1.5 % rdg ± 1 digit	• 4 digits • 0 - 1.000 • 0.001 • 1 % rdg ± 1 digit	• 3 digits • 0 - 1.00 • 0.01 • 1.5 % rdg ± 1 digit	• 3 digits • 0 - 1.00 • 0.01 • 1.5 % rdg ± 1 digit	• 4 digits • 0 - 1.000 • 0.001 • 1.5 % rdg ± 1 digit
• Active power	• Display • Range • Resolution • Accuracy	• N.A. • N.A. • N.A. • N.A.	• 4 digits • 0 - 999.9 kW • 1 μ W • 1.5 % rdg ± 1 digit	• 5 digits • 0 - 999.99 kW • 1 μ W • 1 % rdg ± 1 digit	• 3 digits • 0 - 99.9 kW • 10 mW • 1.5 % rdg ± 1 digit	• 3 digits • 0 - 99.9 kW • 10 mW • 1.5 % rdg ± 1 digit	• 4 digits • 0 - 999.9 kW • 1 mW • 1.5 % rdg ± 1 digit
• Permittivity (ϵ_r)	• Display • Range • Resolution • Accuracy	• N.A. (Hand calculation) • N.A. • N.A. • N.A.	• 5 digits • 0 to 99 • 0.001 • 0.1 % rdg ± 1 digit	• 5 digits • 0 to 99 • 0.001 • 0.02/0.05% rdg ± 1 digit	• 4 digits • 0-99 • 0.01 • 0.5 % rdg ± 1 digit	• 4 digits • 0 - 999 • 0.01 • 0.5 % rdg ± 1 digit	• 5 digits • 0 - 99 • 0.001 • 0.2 % rdg ± 1 digit

3. SELECTION OF LIQUID TEST CELL

- Please refer to SCL 05 test cell data-sheet for selection
- Please, consider standard you must refer for test voltage
- Same, select your heating system in SLC 05 data-sheet



4. SELECTION OF PRESENTATION

