

PTTS Series

Power Transformer/Reactor Test System



- ✓ Transformer No-Load/Load Test IEC60076-1
- ✓ Transformer Induced Voltage Test IEC60076-3/IEC60270
- ✓ Transformer Temperature Rising Test IEC 60076-2
- ✓ Applied Voltage Test IEC60076-3
- ✓ Impulse Voltage Test IEC60076-4
- ✓ Zero Sequence Impedance Measurement IEC60076-1
- ✓ Reactor Loss Measurement IEC 60076-1
- ✓ Reactor Induced Voltage Test /PD Measurement IEC60076-6/IEC60270
- ✓ Reactor Temperature Rising Test IEC60076-3/IEC60076-6
- ✓ Other Routine Test in IEC60076

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Brief

PTTS Power Transformer / Reactor Test System is designed for the routine test and type test for those power transformers and reactors. The system is able to match the routine test requirement for AC power transformer and reactor of up to 1000kV class or that for the converter transformer of up to $\pm 1000\text{kV}$ class.

PTTS Power Transformer / Reactor Test System has consisted of many competitive equipment in the world with our own intellectual property right, such as SGVF series PD free electronic power source, TLMS series transformer loss measurement system, CDYQ series impulse voltage generator, YL series SF6 standard capacitor etc. All these equipment has good performance to bring the perfect cost performance ratio for the whole PTTS system. In contrast to the traditional power transformer test system, the total cost of PTTS will decrease by 20% ~50%. Furthermore, our PTTS use the container structure and prefabricated parts so as to save the constructing period by more than 50% and reduce the workplace area by more than 25%.

PTTS Power Transformer / Reactor Test System has highly automatic control system, which combines various sub-system control, monitoring, safety interlock, data measurement, data storage, test report generating, and data uploading to internet. All of them helps to reduce the labor intensity to the maximum, and to improve the system safety and measurement accuracy.

PTTS Power Transformer / Reactor Test System has been in accordance with the safety standard including EN#50191, ISO#13850, ISO#13849, CSA#Z-432, CSA# C22.10-10, IEC 60947-5, ISO 13849-1. The whole system has safety interlock system which is prior to the general control circuit. meanwhile, our SGVF PD free electronic power source is featured with quick response which is 1000 times as quick as that of circuit breaker. Once fault occurs, the system can stop much quicker to avoid fire or explosion.

Feature and Advantage:

- ✓ Turn-key project service, short delivery time;
- ✓ Low cost for material and system operating, high durability, highly automatic;
- ✓ Good safety, following international safety standard, equipped with safety control circuit;
- ✓ Module design, container structure, quick installation and commissioning;
- ✓ Highly automatic, reducing labor intensity;
- ✓ Easy to extend the capacity in future;
- ✓ Able to measure partial discharge $< 20\text{pC}$ for the power transformer of up to 500kV class, without the shielded room.

Advantages of SGVF Series Electronic Power Source:



- ◆ Low cost & high stability, both indoor and outdoor location, without special workshop;
- ◆ Simple maintenance, only monthly clean dirt;
- ◆ Container module with maximum 6MVA power for one container;
- ◆ More than 20 years' life cycle;
- ◆ Quick feedback upon over-load, (the feedback time can be adjusted by the software);
- ◆ PD level $< 10\text{pC}$ (special requirement $< 5\text{pC}$) at output measurement as per IEC 60270;
- ◆ Wide power factor range, accept capacitive load, not easy to have resonance;
- ◆ Accurate frequency adjustment with 0.01Hz resolution;
- ◆ Able to do 110% No load test upon transformer;
- ◆ Match test requirement for the test upon load tap changer;
- ◆ Easy to extend the capacity (up to 3 sets in parallel);

Advantages of TLMS Transformer Loss Measurement: Advantages of CDYQ Impulse Voltage Generator:



- ◆ High accuracy, with low power factor ($\pm 1.15\%$ when power factor is 0.008);
- ◆ Wide measurement range 10V~150kV, 0.5A~4000A, 16.6Hz~200Hz;
- ◆ Manual/automatic shifting current & voltage taps; no overload affect;
- ◆ All the ratios can be shifted at load condition;
- ◆ High accuracy at full measurement range of voltage and current taps;
- ◆ Good durability with insulation protection to 20kV level;
- ◆ Combined advantages and functions from the international transformer loss measuring system;
- ◆ Calibration port is reserved for calibration;
- ◆ Low partial discharge $< 10\text{pC}$;

Advantages of YL Series Standard Capacitor:



- ◆ Over 30 years' experience in HV standard capacitor industry, with more than 30 sets HV standard capacitors ($> 1000\text{kV}$ class) in the world market;
- ◆ Three-in-one structure, able to measure voltage, tan delta, partial discharge, and reactor loss, simplifying the test procedure and decreasing the space requirement in the lab;
- ◆ 304# stainless steel, tan delta $< 1 \times 10^{-5}$ with super low voltage coefficient and temperature coefficient, capacitance stability $< 0.01\%$ /year;



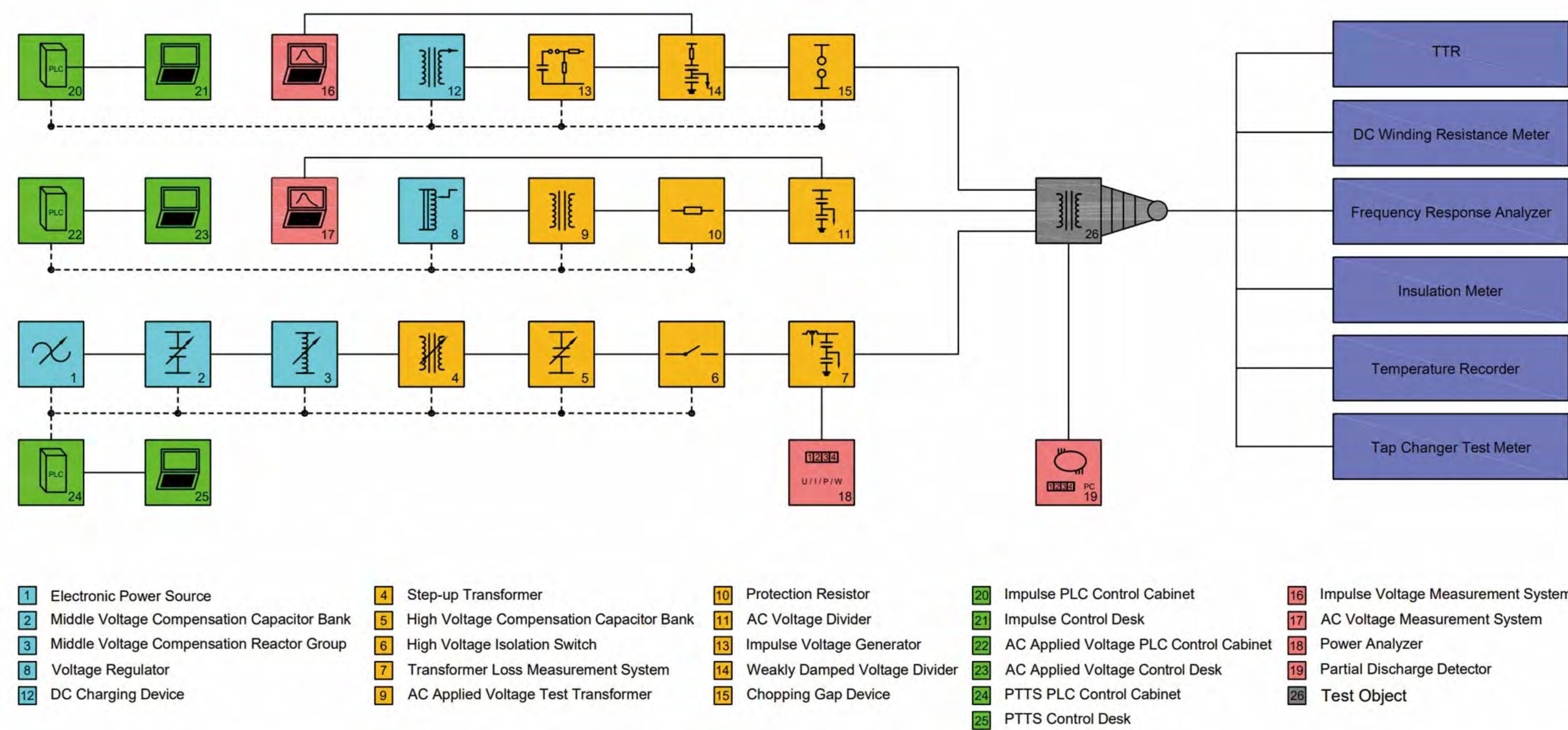
- ◆ Dry type capacitor, wide working temperature range, no leakage;
- ◆ Efficiency $> 90\%$ for switch impulse and lightning impulse at no load condition;
- ◆ Compact and strong structure compared with other impulse voltage generator system;
- ◆ Advanced computer based control and measuring system, easy for data processing, storage and printing;
- ◆ Optic fiber isolation for control and measurement system to protect the engineer;
- ◆ Synchronization range 50% increasing, compared with traditional impulse voltage generator;
- ◆ Pneumatic grounding unit (less than 2second for grounding);
- ◆ Charging/discharge stage selectable, reducing the labor intensity;
- ◆ Air pressure adjusting for discharging, less influence from working environment;

Advantages of TBB Automatic HV Capacitor Bank:



- ◆ Wide range of 10MVar ~6000MVar, 6kV~200kV;
- ◆ Remote control, pneumatic switching, Y/D shift, single/three phase switch, safe grounding switch;
- ◆ Capacitor bank tower structure or tiling structure;
- ◆ Fixed with fuse for each capacitor for safety;
- ◆ PD free design for capacitor bank in reactor test system ($< 30\text{pC}$);

Block Diagram:



Typical Test Lab Configuration:

Transformer Class	66kV	110kV	220kV	500kV	750kV	1000kV
SGVF EPS	500kVA	1000kVA	1500kVA	1800kVA	3000kVA	4000kVA
Step-up Transformer	1000kVA	2000kVA	3000kVA	4000kVA	6000kVA	8000kVA
Capacitor Bank	10MVar	40MVar	100MVar	180MVar	240MVar	400MVar
TLMS	50kV	50kV	100kV	150kV	150kV	150kV
	1000A	2000A	2000A	3000A	3000A	4000A
Impulse Voltage Generator	600kV	800kV	1600kV	2400kV	3600kV	4800kV
	60kJ	80kJ	160kJ	240kJ	360kJ	480kJ
AC Test Transformer	200kV	300kV	300kV	300kV	600kV	600kV
	1A	1A	1A	1.5A	2A	2A
Lab Size	15x10x8m	21x14x9m	20x25x13m	30x25x18m	30x30x20m	35x35x25m
Equipment Area	15x5x5m	21x10x7m	20x10x13m	30x15x13m	30x20x13m	35x20x15m

- ◆ The above table is only for reference, more detailed solution will be up to the specific requirement.
- ◆ Please fill our questionnaire to find the detailed solution and quote.

MORE INFORMATION:
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