SCIENTIFIC RESEARCH AND TEACHING DEVICES

1 SCIENTIFIC RESEARCH SIMULATION PLATFORM

1.1 Scope of application

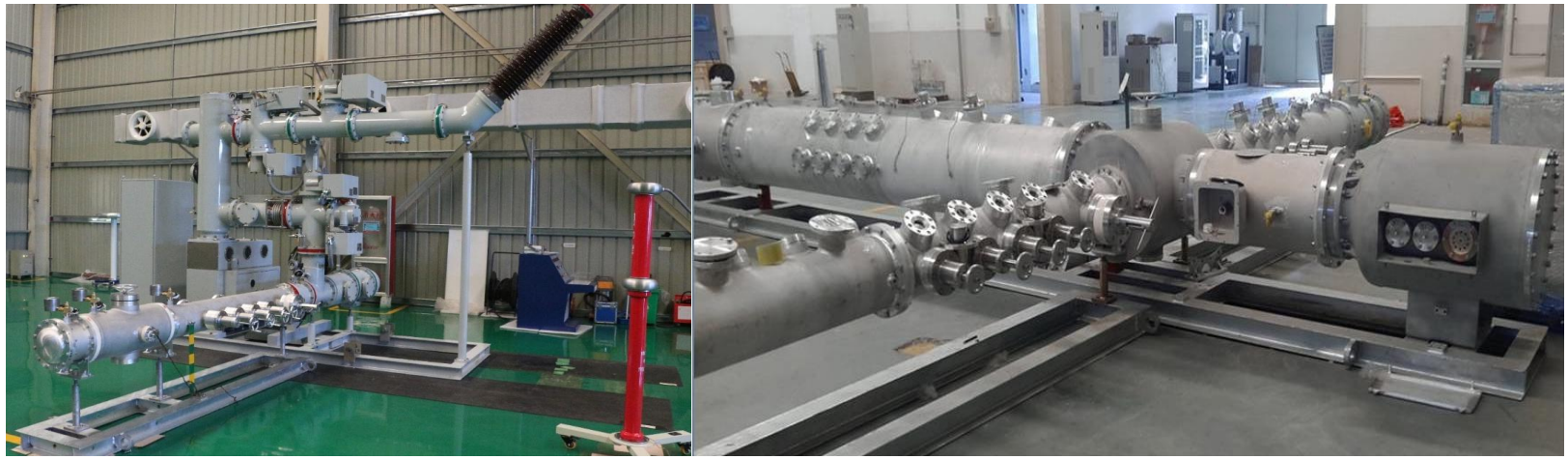
By applying high AC voltage or high current to equipment such as transformers, GIS, insulating parts, etc., the unit can realize the scientific research or teaching of various fields of technology, e.g. sample reliability, breakdown characteristics, temperature rise, gas composition decomposition, PD performance, fault location etc.

1.2 Performance characteristics

- Complete simulation: Using real power equipment such as GIS, and Setting up the actual failure research model, and fully reproducing the operation scene.

- Wide research scope: it can study the reliability, breakdown characteristics, temperature rise, gas composition decomposition, PD characteristics, fault location, error stability, online calibration and other technologies of test products such as transformers and GIS.

1.3 Project cases



GIS PD Simulation Platform

Simulate 126kV GIS internal discharge (tip, floating potential, metal particles, air pockets of insulating parts), mechanical vibration, temperature rise, etc., and realize fault location research

Simulate 330kV substation to apply rated operating voltage and rated operating current, evaluate the long-term live performance of the platform, and conduct electromagnetic disturbance research in the complex electromagnetic environment of the substation

ETPT-330AIS 330kV Open Substation Electromagnetic Disturbance Simulation Device

Simulate 252kV GIS to apply rated operating voltage and rated operating current, evaluate the long-term live performance of the platform, and study the stability performance of electronic transformers.

252kV GIS full-condition test platform

Simulate 330kV GIS to apply rated operating voltage and rated operating current, evaluate the long-term live performance of the platform, and study the generated transient overvoltage and transient performance.

330kV GIS transient test full-condition test platform

4. SCIENTIFIC RESEARCH AND TEACHING DEVICE

4.2 RESEARCH TEACHING MODEL

4.2.1 Scope of application

This series of products are mainly used in colleges, schools and electric power training centers as power equipment models for teaching and training, which can visualize the internal structure of various power equipment such as instrument transformers, arresters, circuit breakers, disconnectors, combined appliances, and transformers, making the training more intuitive and three-dimensional.

4.2.2 Performance characteristics

- Intuitive internal structure: The shell is made of transparent material or cutaway structure, which can observe the internal structure of the equipment, making training more intuitive.

- Function of electronic instructor: it can explain the main function, structure and characteristics of the model equipment and other training contents.

4.2.3 Project cases

GIS models

Transformer models

Instrument transformer models

Switches models

Other models

4. SCIENTIFIC RESEARCH AND TEACHING DEVICE

4.3 IMMERSIVE VIRTUAL REALITY TECHNOLOGY

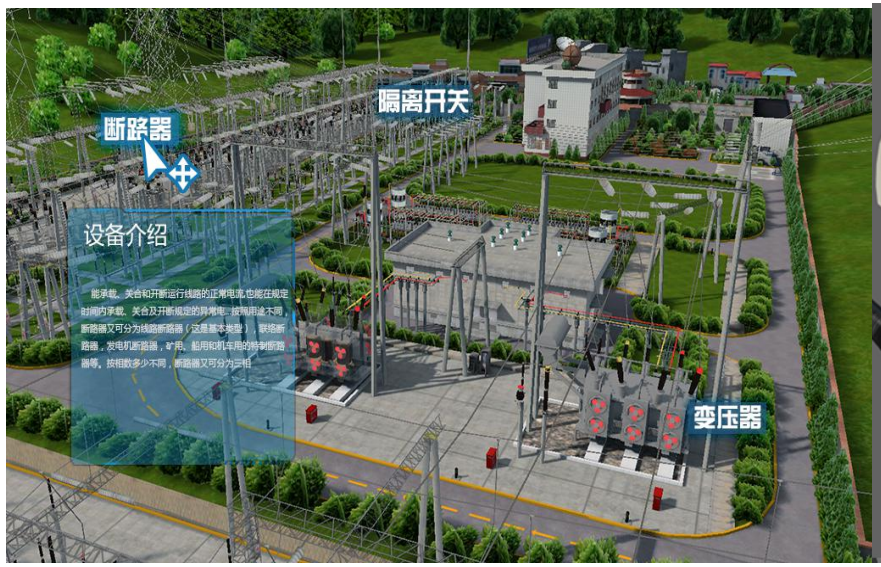
4.3.1 Scope of application

This series of products uses computer simulation to generate a three-dimensional virtual environment. By wearing special glasses, helmets, data gloves and other sensing equipment, users can interact and perceive objects in the virtual environment in real time, and obtain visual, auditory, tactile and other sensory simulations, resulting in immersive feelings and experiences.

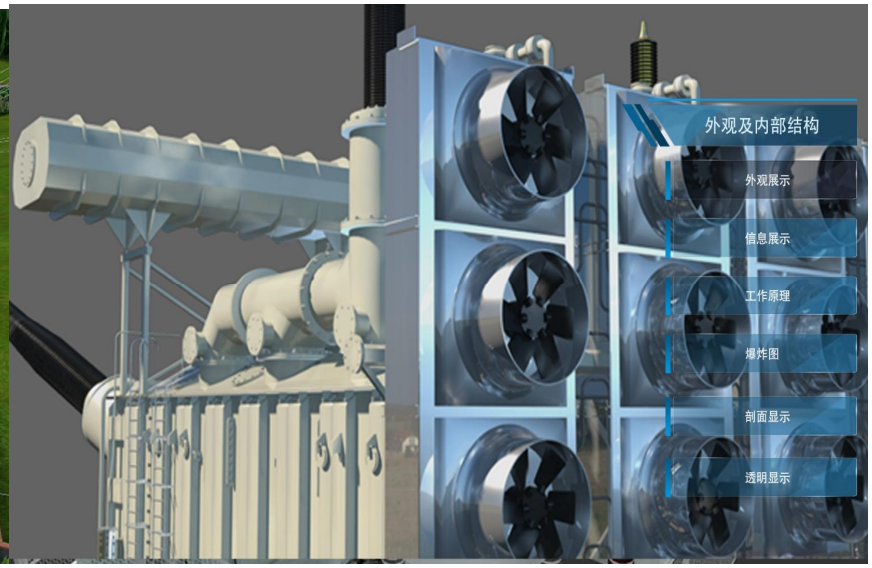
It is used for teaching and training in universities, schools and electric training centers. Also be used in program evaluation, equipment display, education and training, virtual training, simulation drills, and student assessment.

4.3.2 Performance characteristics

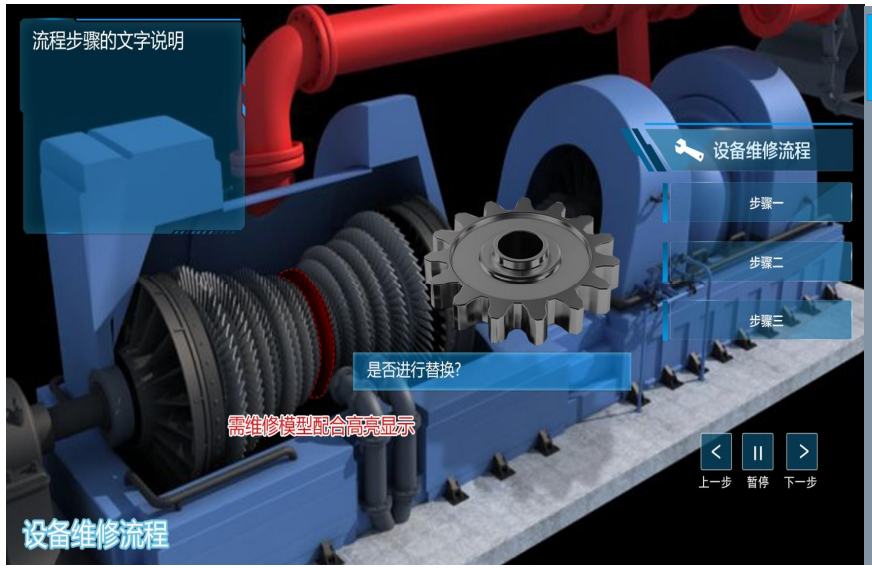
- Human-computer interaction: Combined with virtual reality immersive display system and interactive peripherals, users can perform operations such as display, design, assembly, training, practicing, and assessment in a real environment.
- Data integration: Through man-machine operation, data content of various 3D industrial modeling software can be directly obtained in real time, freely matched with 3D virtual scenes, and the design scheme can be adjusted, assembled, disassembled, inspected and evaluated.
- Visual management: choose a virtual and reality software engine with domestic intellectual property rights, which can visualize the design scheme intuitively and provides a 3D model effect editing environment with powerful 3D graphics editing functions.
- Actual operation: The operator holds an interactive device equipped with an optical position tracking device (manipulation handles of various styles can be customized), the system can capture the position info of the user's hand in space, and the user can communicate with the holographic virtual object in front of him. The devices can provide a convenient way to simulate reality.



Panoramic 3D Simulation of Substation



3D Simulation of Power Equipment Structure



3D Simulation of Substation Maintenance Operation

3D Simulation Case Show