# TRANSFORMER ERROR DETECTION DEVICE

## 1. STANDARD VOLTAGE TRANSFORMER

### 1.1 Scope of application

It is suitable for error measurement during factory test or field hand-over test of power voltage transformer, and used as a transmission standard for voltage magnitude.

### 1.2 Performance characteristics

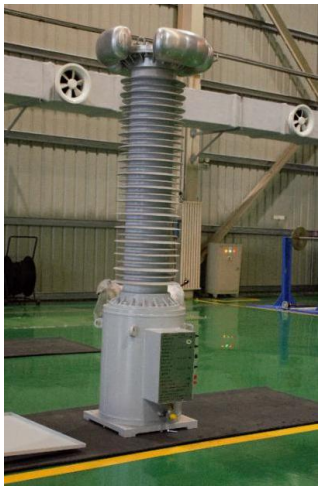
- High measurement accuracy: the highest accuracy can meet the Class 0.001.
- Strong anti-interference ability: The original electromagnetic shielding technology is used inside, which can be used in complex electromagnetic environment.
- Good insulation performance: SF6 gas insulation is adopted, and a large safety factor is reserved, and the product runs safely and reliably.
- Convenient transportation: It can be equipped with a lifting mechanism and transported vertically or horizontally, which is convenient for crossing bridges and tunnels.

### 1.3 Technical parameter

| Model | HJ□-110 | HJ□-220 | HJ□-330 | HJ□-500 | HJ□-765 | HJ□-1000 |
|---|---|---|---|---|---|---|
| Rated voltage $U_N$，kV | 110 | 220 | 330 | 500 | 765 | 1000 |
| Max.working voltage，kV | $1.2U_N$、$1.5U_N$ | | | | | |
| Rated frequency，Hz | 50 | | | | | |
| Rated power factor | 1.0 | | | | | |
| Short-term power frequency withstand voltage，kV | 1.3 $U_n$、1.6 $U_n$ | | | | | |
| Rated secondary voltage，V | $100/\sqrt{3}$、100 | | | | | |
| Accuracy class | 0.001、0.002、0.005、0.01、0.02、0.05 | | | | | |
| Rated output，VA | 0.07、0.2、0.5 | | | | | |
| $SF_6$ annual leak rate | ≤ 0.3 % | | | | | |
| Product weight，kg | 50 | 70 | 200 | 300 | 600 | 1000 |

Note: Products with primary voltage of multiple voltage ratios are available, such as HJ-500, which is compatible with 330, 220, and 110kV taps.

## 1.4 Project applications



220kV bipolar type


Voltage class-500kV/765kV/1000kV/1200kV

Voltage class -765kV/1000kV/1200kV field verification

# 2. INTEGRATED PLATFORM FOR VOLTAGE TRANSFORMER ERROR DETECTION

## 2.1 Scope of application

At the substation site, apply the voltage transformer with frequency voltage and measure the voltage error. The metal sealing technology is used to realize the integrated integration of the step-up system and the standard transformer. The test objects include CVT, EVT, IVT and other types of voltage transformers.

## 2.2 Performance characteristics

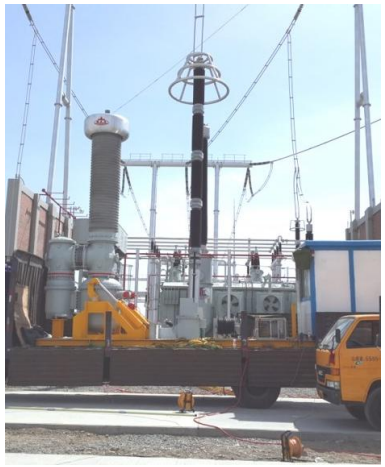
- Convenient transportation: The height of the platform is less than 1.8 meters, which is convenient for crossing bridges and tunnels.
- Easy up and down operation: The equipment is erected and dropped by the lifting mechanism on the transport vehicle.
- No wiring between devices: all the inter-module wiring is well connected, and no further wiring is required.
- Low running noise: The running noise is less than 60dB.
- Lower power supply capacity required: the actual power consumption capacity of the 750kV CVT is less than 10kVA during the test, and 500kV CVT is less than 7kVA.

## 2.3 Technical parameter

| Model | HJCX-220(110) | HJCX-330 | HJCX-500 | HJCX-765 | HJCX-1000 |
|---|---|---|---|---|---|
| Rated primary voltage $U_N$ ， kV | 220(110)/ $\sqrt{3}$ | 330/ $\sqrt{3}$ | 500/ $\sqrt{3}$ | 765/ $\sqrt{3}$ | 1000/ $\sqrt{3}$ |
| Max.working voltage ， kV | $1.2U_N$ | | | | |
| Rated frequency ， Hz | 50 or 60 | | | | |
| Rated power factor | 1.0 | | | | |
| Short-term power frequency withstand voltage ， kV | 1.3 $U_N$ | | | | |
| Test capacity，pF | 5000、10000、20000 | | | | |
| Accuracy class | 0.01 、0.02 、0.05 | | | | |
| Rated output，VA | 0.07、0.2、0.5 | | | | |
| Work schedule | Run for 5 minutes, stop for 10 minutes, cycle 20 times a day.<br>(Customized as per customer needs) | | | | |
| $SF_6$ annual leak rate | ≤ 0.3 % | | | | |
| Product weight ， kg | 500 | 800 | 3600 | 4200 | 6800 |

## 2.4 Typical application

Horizontal transport



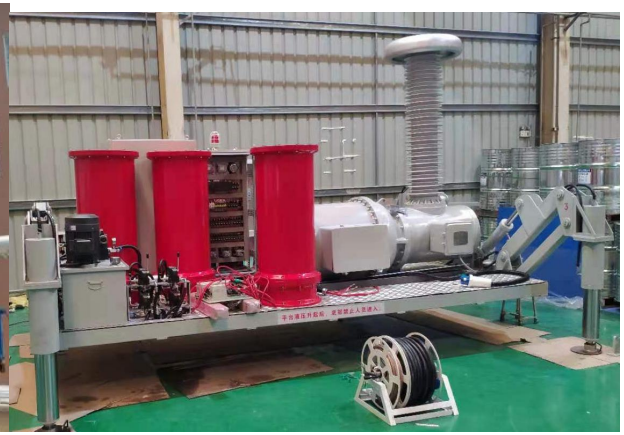
(on-site electric erection)

Inclined transport (high altitude 4500 meters)

## Project applications

500kV voltage error integrated detection platform

500kV detection platform (For high altitude)



500V Dump truck voltage error series harmonic detection platform

765kV voltage error integrated detection platform
(With operating room)

Inside the room

765kV self-lifting dump truck voltage error series harmonic detection platform


765kV voltage error integrated detection platform
(Operation under vehicle)

1000kV transformer error detection platform

# 3. TRANSFORMER ERROR DETECTION VEHICLE

## 3.1 Scope of application

At the substation site, apply the power transformer with high voltage and current to realize the direct method to test the error of PT & CT.

The test objects include various types of power voltage transformers, power current transformers, etc.

## 3.2 Performance characteristics

- Compact body, reasonable size setting, convenient transportation. It is more suitable for field application.
- The core components are independently developed, designed and produced. The host unit is all designed according to the online power equipment benchmark. The electrical structure design is strict and reasonable, the insulation margin is large, and the product operation is safe and reliable.
- The electric mechanism is simple and reliable; the automatic and manual modes are mutually backup; the three power supply schemes of municipal, vehicle battery and UPS to the transmission mechanism, with high reliability.
- High integration, simple wiring, convenient operation. Only need to connect primary wire and secondary lead during field test, no need for adjustment and reconnection between units.

## 3.3 Technical parameter

| Model | TMV-110 | TMV-220 | TMV-330 | TMV-500 | TMV-750 | TMV-1000 |
|---|---|---|---|---|---|---|
| Rated primary voltage $U_{N,}$ kV | (110)/ $\sqrt{3}$ | 220)/ $\sqrt{3}$ | 330/ $\sqrt{3}$ | 500/ $\sqrt{3}$ | 765/ $\sqrt{3}$ | 1000/ $\sqrt{3}$ |
| Accuracy class of standard current transformer | 0.02、0.05、0.02S、0.05S | | | | | |
| Accuracy class of standard voltage transformer | 0.02、0.05 | | | | | |
| Frequency, Hz | 50 | | | | | |
| Vehicle Type | Medium bus, motor van, various well-known brands at home and abroad are optional. | | | | | |

Note: This series of products adopts a number of patented technologies.

## 3.4 Typical application

In-vehicle equipment drop-off device (optional)

Vehicle operating room (optional)


Off-the-vehicle control system (optional)

## Project application

110kV transformer error detection vehicle


220kV transformer error detection vehicle


500kV error detection vehicle (fixed container)& (sliding container)


500kV transformer error detection vehicle (500 dragging 220)

# 4. Other transformer error detection devices

## 4.1 Scope of application

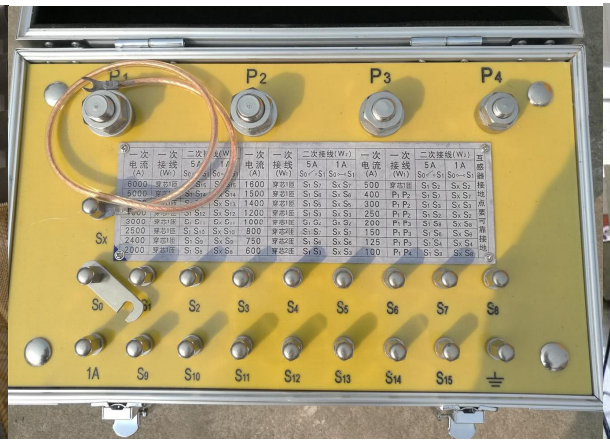
In the substation site and laboratory, apply high voltage and current to the power instrument transformer, and realize the direct method test of voltage transformer and current transformer error and transformer loss test. The test objects include various types of power voltage transformers, power current transformers, transformers, etc.

## 4.2 Performance characteristics

- Compact body, reasonable size setting, convenient transportation. It is more suitable for field application.
- The core components are independently developed, designed and produced. The host equipment is all designed according to the online power equipment benchmark. The electrical structure design is strict and reasonable, the insulation margin is large, and the product operation is safe and reliable.
- High integration, simple wiring and convenient operation.
- High degree of customization.

## 4.4 Project application

High precision transformer loss test system

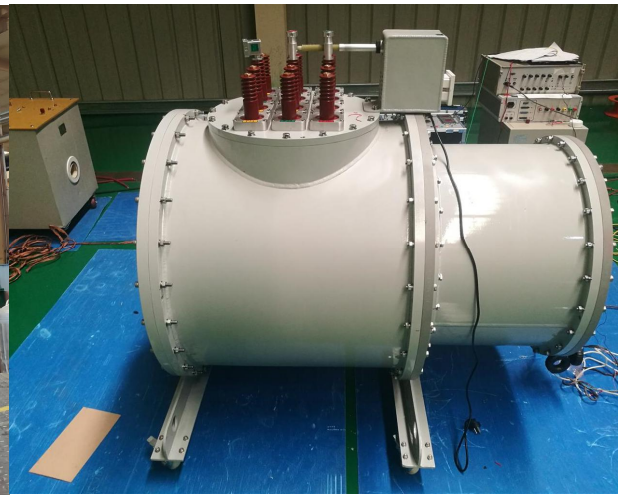



Standard current transformer


Current transformer error detection split device

Vehicle current transformer error detection platform


Self-propelled lifting current transformer error monitoring system



Three-phase full-voltage and full-current measurement and calibration platform for distribution network