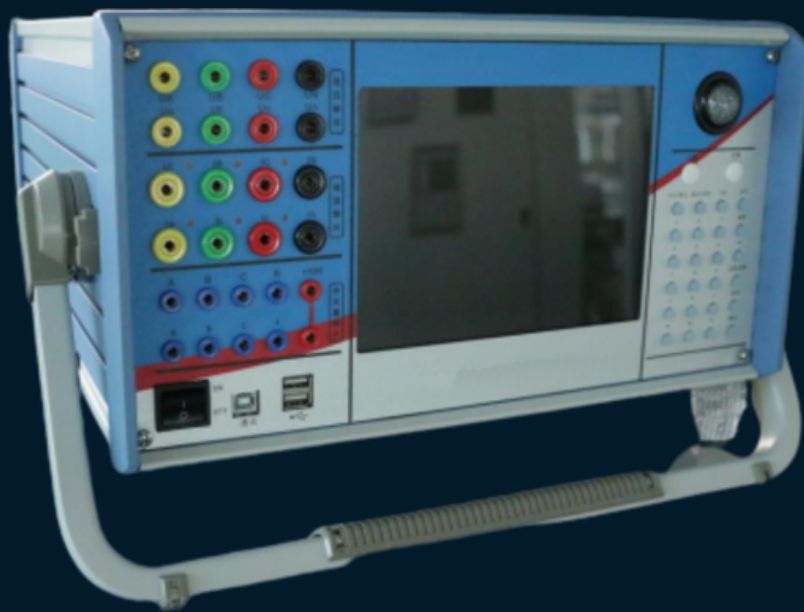


SIX-PHASE TEST TOOL

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## SIX-PHASE UNIVERSAL RELAY TEST AND COMMISSIONING DEVICE



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# SIX-PHASE RELAY TESTER DEVICE

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## Description

The protection systems play a fundamental role in the safety and reliable operation of electrical power systems.

The properly functioning protection devices help maintain system safety and protect assets from damage, which is why the hexa-phase source is an essential testing tool for verifying functionalities before installation.

Equipped with advanced technology and precision components, the device is compact, lightweight, complete, and easy to transport for various protection and selectivity tests.

### Benefits:

- **Dedicated independent DC power output:** It features a dedicated adjustable DC power output of 110V and 220V.
- **Comprehensive interface:** It has a USB communication port, enabling communication with computers and other external devices.
- **Self-protection function:** It adopts reliable hardware protection measures, and the software performs self-diagnosis for faults and output locking functions.

## Features

- **Output up to 6 phases for voltage and 6 for current.** It can be arbitrarily combined to obtain voltage of the conventional system (3 phases plus neutral), three-phase currents, phases, three-phase voltages, or a combination of both, up to 12 simultaneous channels. They are compatible with traditional output modes. It can perform the differential test of the three-phase transformer and the fast energy reclosing test and automatic reclosing test.
- **The equipment ensures the absence of high-frequency interference during on-site tests, guaranteeing a smooth and accurate waveform in all phases of the process, regardless of voltage and current levels.**
- **The high-performance output part adopts DSP control, which has fast calculation speed, strong real-time digital signal processing capability, wide transmission frequency, and high-resolution D/A conversion control.** The output waveform has high precision with a resolution of less than 0.2%, low distortion <1% THDV, and good linearity.



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# SIX-PHASE RELAY TESTER DEVICE

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## Software

It features a user-friendly and intuitive interface for simple yet comprehensive operation. The test modules are divided into five groups according to different functions:

- General Testing;
- Conventional Protection;
- Line Protection;
- Component Protection;
- Comprehensive Function.

Each group contains several sub-menus. For instance, the "General Testing" group includes five test modules: "AC Test", "DC Test", "Harmonic Overlay", "State Sequence I", and "State Sequence II", which can be expanded arbitrarily.



## Technical Specifications

Number of current channels	Standard 6 phases
Number of voltage channels	Standard 6 phases
AC current output range	30A / phase, or 180 A (six phase combined)
DC current output range	10 A <sub>DC</sub> / phase
AC voltage output range	120 V <sub>DC</sub> / phase
DC voltage output range	160 V <sub>DC</sub> / phase

## AC current output

Six-phase current output, each phase (RMS value)	0 ~ 30 A
Output accuracy	0,2 %
Output of each phase (RMS value) when current output is three-phase	0 ~ 60 A
Six-phase parallel current output (RMS value)	0 ~ 180 A
Long-term allowable working value of phase current (RMS value)	10 A
Maximum phase current output power	300 VA
Maximum output power at maximum output of six-phase parallel current	1000 VA
Maximum allowable time of six-phase parallel current output	10 s
Frequency range (fundamental wave)	20 ~ 1000 Hz
Harmonic frequency	1 ~ 20 times

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## Technical Specifications

### DC current output

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Current output	0 to $\pm 10$ A
Output accuracy of each phase	0,5 grade
Maximum output load voltage	20 V

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### AC voltage output

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Phase voltage output (RMSvalue)	0 ~ 120 V
Output accuracy	0,2 %
Line voltage output (RMS value)	0 ~ 240 V
Phase voltage / line voltage output power	80 VA / 100 VA
Frequency range (fundamental wave)	20 ~ 1000 Hz
Harmonic frequency	1 ~ 20 times

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### DC voltage output

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Phase voltage output amplitude	0 to 160 V
Output accuracy	0,5 grade
Line voltage output amplitude	0 to $\pm 320$ V
Phase voltage / line voltage output power	70 VA / 140 VA

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## Technical Specifications

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### Switch

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8-way switch input

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Idle contact 1 ~ 20 mA, 24 V

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Potential contact access "0": 0 to +6V; "1": +11 to +250 V

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4 pairs of switch output

DC: 220 V / 0,2 A

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AC: 220 V / 0,5 A

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Time measurement range

0,1 ms ~ 9999 s

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Accuracy: < 0,1 ms

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## Index of Relay Protection Test Items

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### Relay protection type

### Suggested test modules

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Signal relay

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Time Relay

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Intermediate relay

DC test  
AC and DC test

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Reclosing relay

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Other DC voltage and current relays

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## Index of Relay Protection Test Items

Relay protection type	Suggested test modules
Current relay	
Over/Under voltage relay	
Sequence component relay	AC test
Synchronization check (or phase comparison) relay	
Inverse time current relay	
Differential relay	Differential relay, differential harmonic, AC and DC test, harmonic test
	Differential relay, AC test
Power (direction) relay	
	Power direction and impedance, AC test
Impedance relay	
Synchronous relay	Simultaneous test, exchange test
Frequency relay	Under/Over Frequency

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