We manufacture Relay Testing Equipment

MP3000A1

Relay Test System

www.tesient.com

MP3000A1

Universal Relay Testing System

Introduction

Protective relays safeguard the most expensive equipment in the power system. The performance of these ralays needs to be checked / verified during commissioning and at periodic intervals. To check these ralays the protection engineer needs a reliable tool -A relay test set that incorporates State of the art hardware suitable for the field working conditions easy to operate, flexible and powerful software.

With close interaction with relay manufacturers, Protection engineers and our expertise in designing and manufacturing relay test sets based on DSP technology, Tesient has launched a new, state of the art platform of relay test sets MP3000A. It can cater to most of the demanding applications in testing different types of modern relays.

Features

- Linear power amplifiers
- Six currents and four voltages
- High accuracy in wide range
- All generators output simultaneously
- Auto detection for binary inputs in software
- Generators are protected for overload/over temperature/short circuit
- Audio visual overload, contact status, short circuit, hardware protection indication on front panel
- Advanced modular Plug-in structure
- Variable Aux dc
- Full automatic testing using PC controlled software and local control interface
- 3 years warranty

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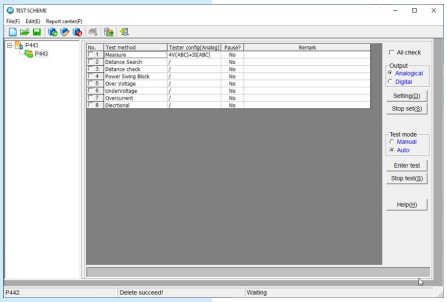
MPWin Relay Test Software

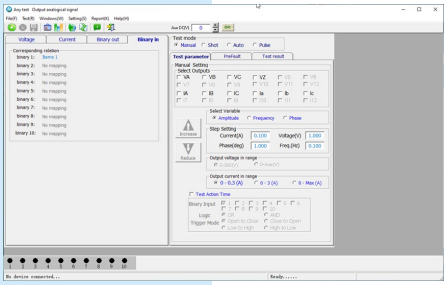
MPWin Software

Apply in Windows 10/Windows 8/Windows 7 and Windows XP. User-friend interface for quick operation. Set kit configuration in system configuration once, all the modules are auto configured.



Test Scheme Manager

The test plan can be set up according to the protective relay functions. The test scheme makes the test automatic and standardization. The test report can be user-defined from Test Scheme, so the reports for the same relay or several reports for the similar relays can be managed well.



Any Test

Adjust the current/voltage amplitude, frequency and phase online in each channel. Pre-set 3-states and trip time of the relay. Auto ramp test amplitude, frequency and phase in one or more channel. Pulse ramp test amplitude, frequency and phase in one or more channel

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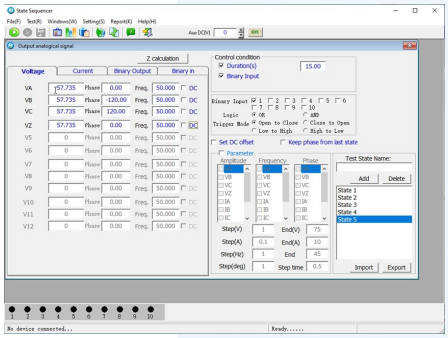
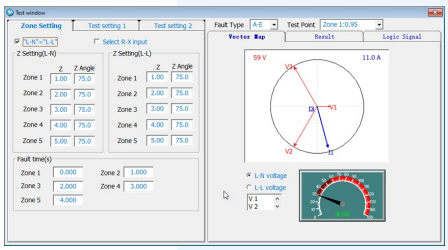
MPWin Relay Test Software



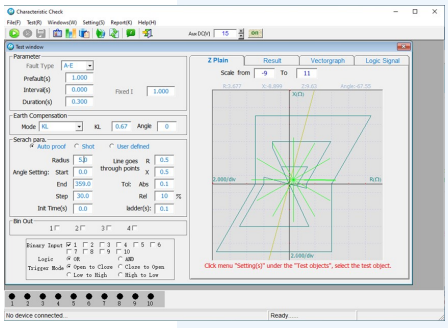
State Sequence

Define different parameters in each state including: amplitude, frequency, phase , binary input/output and output time, etc. Parameter calculation is available.



Distance - setting verification

Quickly verify the settings of distance relay



Distance - characteristic check

Check the distance relay characteristic based on the distance relay characteristic curve. The curve can be drawn automatically according to the XRIO file imported from protective relay

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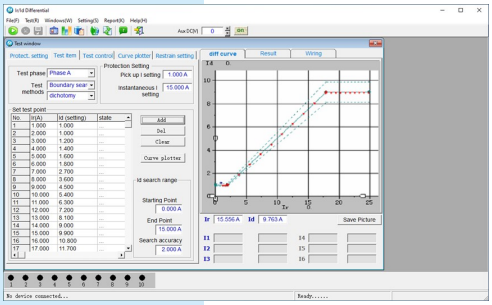
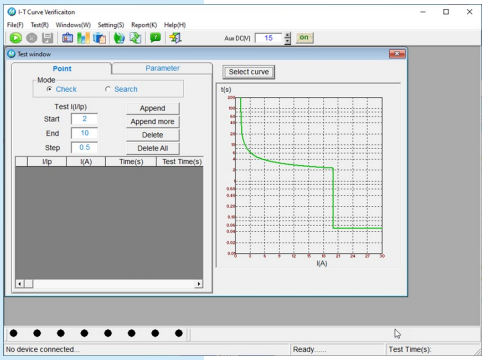
MPWin Relay Test Software



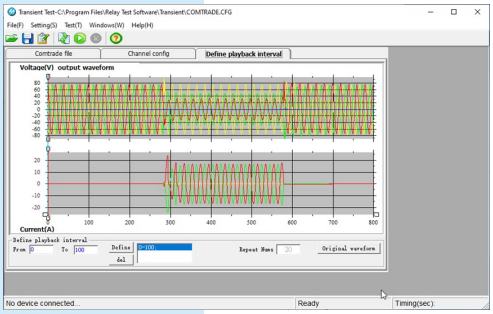
Differential Relay

In differential 6I module, no need wiring connection during testing. The trip characteristic and trip time can be checked. Auto-calculation and evaluation for stability characteristic is available.



I-T Curve Verification

Check or search IEC or ANSI curve with different current trip time



Trans Playback

Play back the current, voltage and binary output in Comtrade file to analyze the transient fault. Support to extend, cut and copy the original Comtrade file

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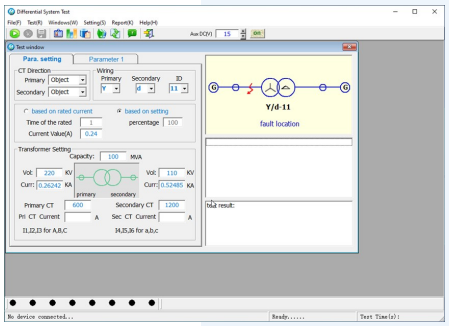
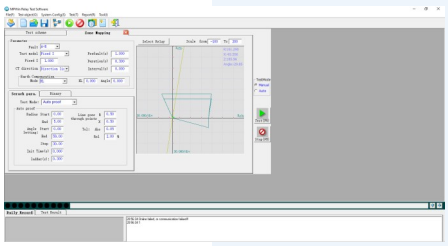
MPWin Relay Test Software



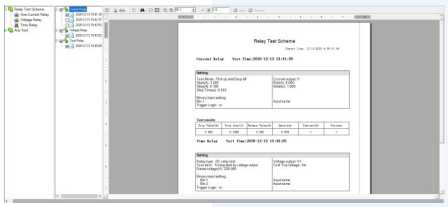
Differential Scheme Check

Check the performance of differential relay in different ways, including simulating different types of faults in zone or out of zone for transformer differential relay, simulating different types of faults in 4 positions of both sides for transformer differential relay, etc.



XRIO Import

Support the import of XRIO files and link the XRIO file with relay characteristic curve and settings, enabling various automatic test functions



Test Report

Managing the test reports and save them in different format, including Microsoft Word and Excel，rtf 、TXT 、html、tif, etc

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Specifications

Voltage generators

Number of outputs	4
Ranges	
AC (L-N)	4 x 0-300V
AC (L-L)	2 x 0-600V
DC (L-N)	4 x 0-±424V
DC (L-L)	2 x 0-±848V
Power	
AC (L-N)	4 x 100VA typ. at >130V
	4 x 75VA guar. at >100V
AC (L-L)	2 x 200VA typ. at >260V
	2 x 150VA guar. at >200V
DC (L-N)	4 x 70W at >100V
Accuracy	error < 0.15% rd. + 0.02% rg. guar.;
	error < 0.1% rd. + 0.01% rg. typ.
Resolution	10mV for 300Vac
Step response time	<100µS at <75V
Distortion (THD%)	<0.05% typ., <0.1% guar., at >5V
Frequency-Amplitude characteristic	<0.5% at ≤ 450Hz, <1% at ≤ 1000Hz
Output time	Continuous
Operation indication	LED on front panel

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Specifications

Current generators

Number of outputs	6
Ranges	
AC (L-N)	6 x 0-30A
1-phase AC (6L-N)	1 x 0-180A
3-phase AC (2L-N)	3 x 0-60A
DC (L-N)	6 x 0-±20A
DC (6L-N)	1 x 0-±120A
Power	
6-phase AC (L-N)	6 x 450VA typ. at 30A
	6 x 400VA guar. at 30A
3-phase AC (2L-N)	3 x 800VA typ. at 60A
	3 x 700VA guar. at 60A
1-phase AC (6L-N)	1 x 1200VA typ. at 180A
	1 x 1000VA guar. at 180A
DC (L-N)	6 x 250W typ. at 20A
	6 x 200W guar. at 20A
DC (6L-N)	1 x 1200W typ. at 120A
	1 x 1000W guar. at 120A
Max compliance voltage (L-N)	21Vpk
Accuracy	error < 0.1% rd. + 0.05% rg. guar. at 0-30A
	error < 0.1% rd. + 0.02% rg. typ. at 0-30A
Resolution	1mA
Step response time	<100µS at resistive load
Distortion (THD%)	<0.06% typ., <0.1% guar.
Frequency-Amplitude characteristic	<0.5% at ≤ 450Hz, <1% at ≤ 1000Hz
Output time	>15 Sec. at 30A
Operation indication	LED on front panel

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Specifications

General

Frequency

Sine signal (Range)	DC, 0.001Hz - 1000Hz
Transient signal	DC - 5kHz
Frequency accuracy/drift	±1ppm
Frequency resolution	0.001Hz

Phase

Phase angle range	0-±360°
Phase angle accuracy	<0.05° typ., <0.1° guar., at 50Hz/60Hz
Phase angle resolution	±0.005°
Synchronization time between I and V	<20μS

Auxiliary DC supply

Voltage range	24-300V
Power	Imax 1A; Pmax 100W
Accuracy	error < 0.2% rg. typ., <0.5% rg. guar.

Power supply

Nominal supply voltage	110-240Vac, 1 phase
Permissible supply voltage	90-260Vac
Nominal frequency	50/60Hz
Permissible frequency	45-65Hz
Max. current	10A

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Specifications

Binary inputs & outputs

Binary inputs

Number of inputs	8（4 auto-detect, 4 polarity dependent)
Input characteristic (1-4)	Auto-detect in white
Input characteristic (5-8)	Potential free or 0-250Vdc with polarity dependent red for positive, black for negative
Sample rate	50kHz
Time resolution	20µS
Max. measuring time	Infinite
Debounce/deglitch time	0-25ms
Counting function	<5kHz at pulse width >100µS
Galvanic isolation	8 galvanically isolated

Binary outputs

Number of outputs	4
Type	Potential free relay contacts, software controlled
Break capacity AC	Vmax: 250Vac; Imax: 5A; Pmax: 1250VA
Break capacity DC	Vmax: 30Vdc; Imax: 5A; Pmax: 150W

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Specifications

Others

Control Interface	
PC Connection	1 Ethernet, 10M/100M
GPS synchronization interface	***optional***, Coaxial cable connector, rear side
IRIG-B synchronization interface	***optional***, SMA connector, rear side
Ground socket (earth)	4 mm banana socket
Weight and dimensions	
Weight	16.5 kg
Dimensions (WxHxD)	360mm x 210mm x 462mm
Environmental condition	
Operating temperature	0-45˚C
Storage temperature	-5-+70˚C
Relative humidity	5-95%, non-condensing
CE certificate (EMC/EMI)	EN 61326-1: 2006
	EN61000-3-2: 2006
	EN61000-3-3: 1995 + A1:2001 + A2:2005
	EN61010-1: 2001
FCC	PART 15, Class A
GPS Synchronization control (optional)	
Signal	PPS, or IRIG-B (optional)
Time setting	free trigger time setting
Signal receiving time	< 60 Sec

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