Tesient

We manufacture Relay Testing Equipment

MP3000F

Relay Test System

MP3000F

Universal Relay Testing & Commissioning Set

Introduction

The MP3000F is the all-in-one test system for protection relay testing and commissioning applications. In addition to the ability of testing conventional protective relay with analog voltage and current outputs, the MP3000F can also test IEC61850 complied digital protection devices and systems, such as simulating/subscripting GOOSE messages, publishing Sampled Values. The 12 low level analog output are provided for stimulating devices with low level inputs.

Features

- ✔ Linear power amplifiers

- ✔ Six currents and four voltages

- ✔ High power and high accuracy

- ✔ 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

- ✔ Light weight, easy to use

- ✔ IEC 61850 testing capability

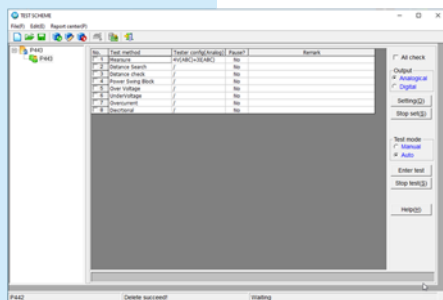- ✔ Full automatic testing using PC controlled software

- ✔ 3 years warranty

MP3000F
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.
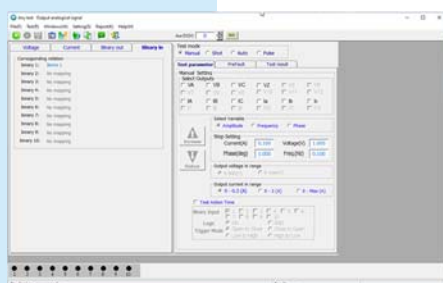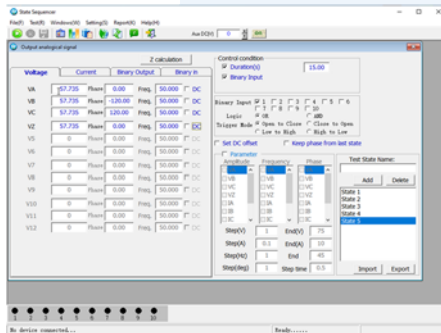

Any Test

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
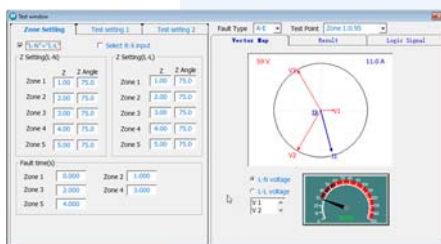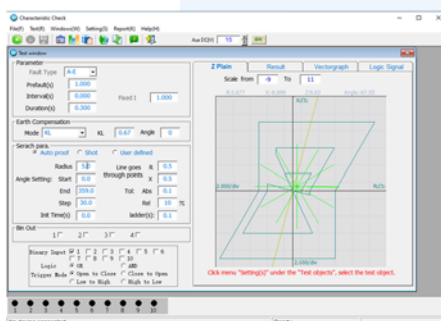
MP3000F

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
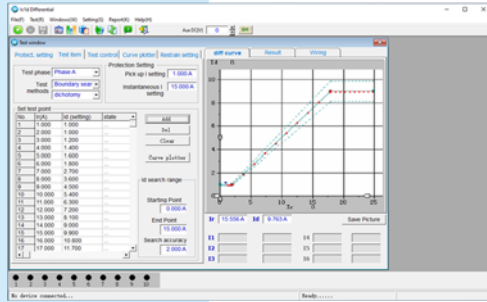
Quickly verify the settings of distance relay

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.
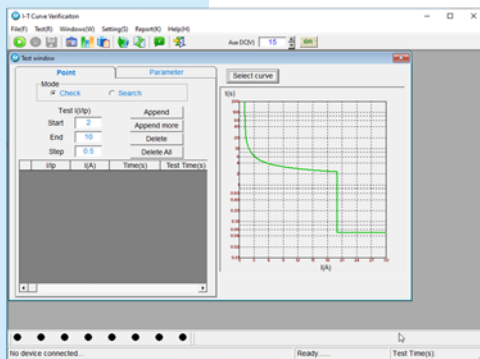
I-T Curve Verification

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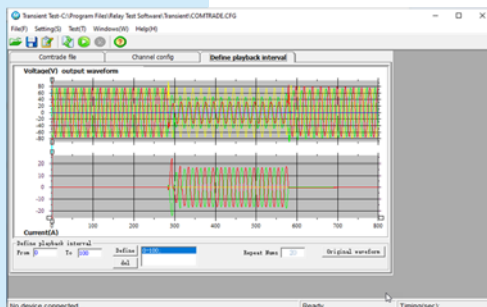
Trans Playback

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

MP3000F

MPWin Relay Test Software
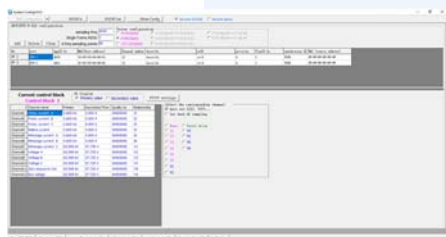
IEC61850 test configuration

Support SMV format IEC61850-9-2/9-21e. Support goose format IEC61850-8-1 output. Support direct import of substation IED configuration file, including CID, ICD, SCD etc., and automatically map them to output channels.
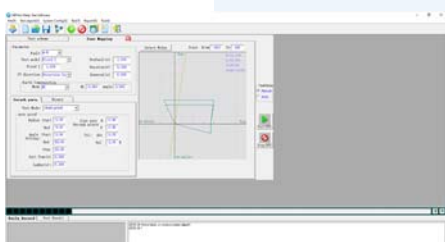
XRIO Import

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

MP3000F
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

MP3000F
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

MP3000F
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

MP3000F
Specifications

Binary inputs & outputs

Binary inputs

Number of inputs	10 (8 auto detect, 2 polarity dependent)
Input characteristic (1-8)	0-250Vdc/ac peak threshold or potential free
Input characteristic (9-10)	Potential free or 0~250V dc with polarity dependent
Sample rate	50kHz
Time resolution	20µS
Max. measuring time	Infinite
Debounce/deglitch time	0-25ms
Counting function	<5kHz at pulse width >100µS
Galvanic isolation	10 galvanically isolated

Binary outputs, relay

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

Binary outputs, semiconductor

Number of outputs	4
Type	semiconductor
Break capacity DC	Vmax: 300Vdc, Imax: 0.1A, Pmax: 30W
Update rate	100µS
Imax	100mA

MP3000F
Specifications

Others

Low level outputs

Setting range	12 x 0-10Vpk
Max. output current	10mA
Accuracy	error < 0.05% typ., <0.1% guar., at 1-10Vpk
Resolution	250μV
Distortion (THD%)	<0.05% typ., <0.1% guar.
Connection	4mm banana socket (on the side)

Control Interface

PC Connection	1 Ethernet, rear side, 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	17 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

IEC 61850

GOOSE simulation/subscription	Virtual binary input/output: 255; GOOSE message: 12
Sampled value publishing	4 x SV stream per port
Connection of GOOSE and SV	8 x fiber-optic Ethernets
FT3 interface	8 x SC ports for FT3 simulation

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