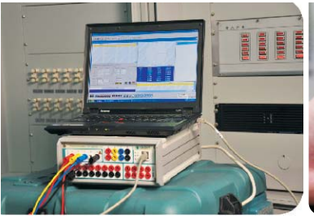


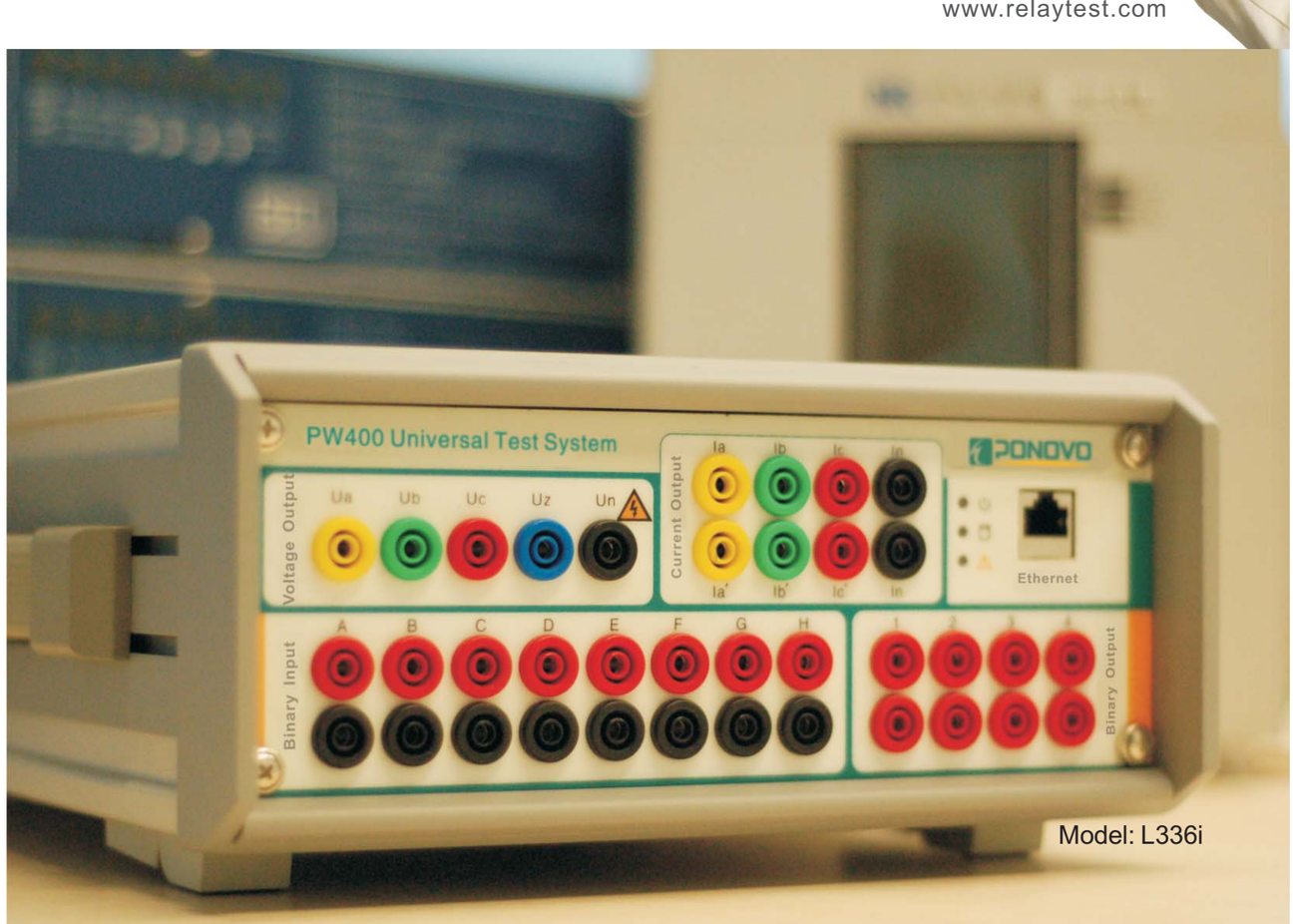
PONOVO

Universal Test System

Model: L336i

Professional solutions provider for relay testing

www.relaytest.com



Model: L336i

Sales network

PONOVO POWER CO., LTD.

No.139 Jinghai Road, Beijing Eco.& Tech. Development Area,
Daxing District, Beijing, China(100176)
Tel ：+86 (10) 95089666
www.relaytest.com
info@relaytest.com
support@relaytest.com

CE

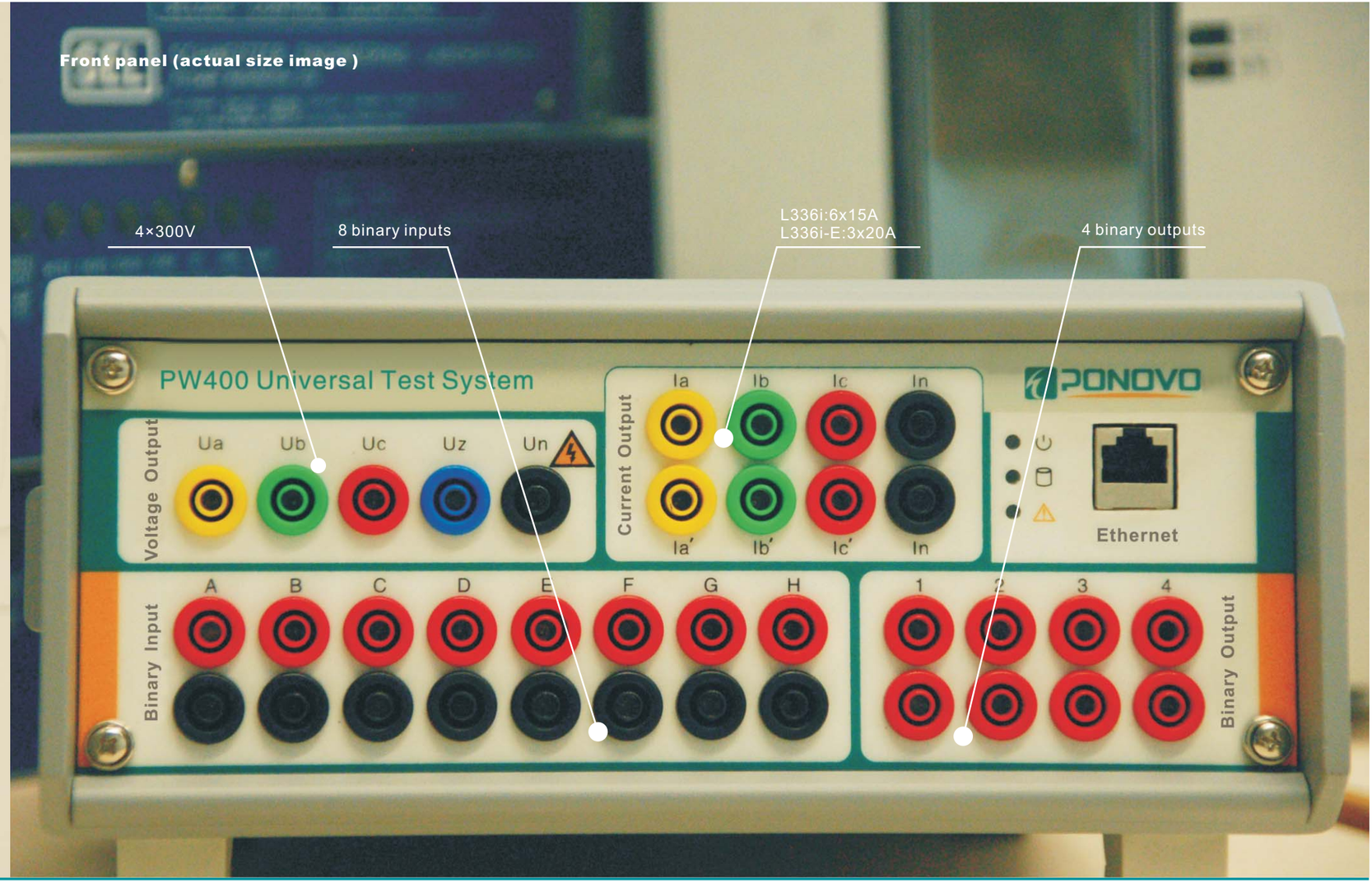
ISO 9001 QMS
ISO 14001 EMS
OHSAS 18001

New light weight relay testing equipment

We are proud to announce the new L336i relay testing system which is the lightest in weight and the smallest in size in the word so far.

Features

- Light weight with only 8.8kg, half of the weight of traditional testing system
- Tracing the signal generation with digital technology
- Stable signal output with high accuracy
- Binary inputs with adjustable threshold
- Use LAN port for connecting to external PC
- Internal digital recorder for monitoring and recording test process
- Use powerful PowerTest software with ready test modules, realizing the maximum control flexibility over test process
- Can be upgraded to support the test of IEC61850 compatible relay
- Can support wireless control by smart phone APP for testing relays



Applications

- **Relay test:** line protection, differential protection, generator protection, line differential, directional relay Time-inversed current relay, auto-reclosing, etc
- **Measuring and control device:** synchronizer , df/dt, etc
- **System simulation:** playback of COMTRADE format file
- **Calibration:** 0.5 Class energy meter, disturbance recorder, indicating meters, etc

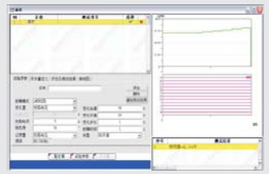
Rear side

PowerTest software

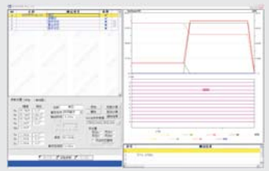
Test modules example

Quick Test
Manual or auto control over all voltage and current sources. All test parameters, such as amplitude, phase, frequency, etc can be set separately.

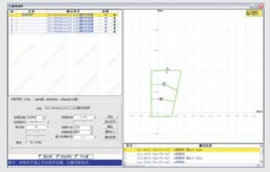
Ramp
Linear or pulse ramp can be used for different test applications, such as directional relay, current relay, voltage relay, frequency, etc.



State sequence
Here we can a sequence of states for special test application. A fault calculation tool is provided to set fault settings easily for each sequence.

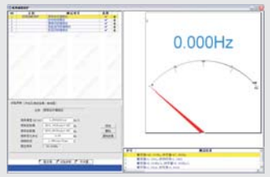


Distance
The impedance characteristic can be uploaded on to the Z-plane and any points on Z-plain can be checked. Z-T diagram can also be got after test is over.

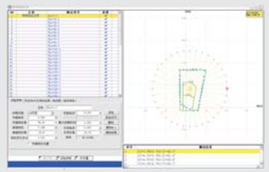


Auto-recloser
This module makes the check of autoreclosure very easy. The tripping after the second fault can also be checked.

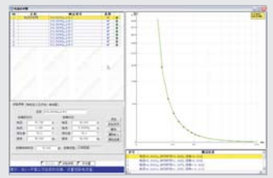
Underfrequency
Different tests can be done for df/dt relay, including pick up , trip time, df/dt setting, under-voltage or under-current blocking.



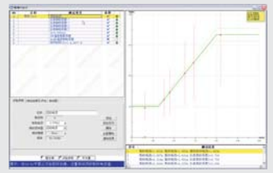
R/X characteristic sweep
This module is used to map out the characteristic boundary of impedance relay and compare it with the principle characteristic.



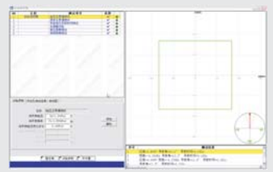
Inverse time overcurrent
Test can be done based on actual over current characteristic. Assessment will be done automatically after test is over.



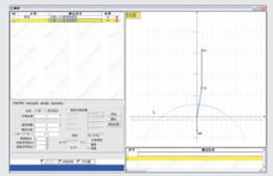
Differential
This module allows user to test differential relay with 6 currents. Ir/Id curve can be defined easily based on relay setting. Harmonic restraint can also be checked.



Synchronizer
This module is used to check the synchronizer relay, including voltage and frequency difference check, leading time and leading angle check, auto-adjusting function, etc.



Power swing
This module provides the tool to observe the relay behavior during dynamic power swing process. Power swing with fault can also be simulated.



Cellphone APP control
L336i support wireless control for doing testings by smartphone APP, in IOS and Android system. Quick Test and State Sequence modules are available in the APP.

Technical specifications

AC Current outputs

Control	Independent control of amplitude, frequency and phase angle
Range	Standard version: 6×15A / 3×30A / 1×60A
	Economic version:3×20A / 1×60A*
Accuracy	error < 0.08 % rd. + 0.02 % rg.guar.
	error < 0.03% rd. + 0.02 % rg. typ.
Resolution	1mA
Output power	Standard version: ≥210VA(at 30A, LN)
	Standard version: ≥105VA(at 15A, LN)
	Economic version: ≥140VA(at 20A, LN)*
Output response time	<100μs
Distortion (THD%)	<0.05%type.,<0.1%guar., at >0.5A
Frequency- Amplitude chacteristic	≤± 0.1%~± 0.5% (1Hz~1kHz)
Output time	continuous (<10A/channel)
	>70s (<10~20A/channel)
	>15s (≥20/channel)
Operation indication	Overload, distortion, open circuit,over heat

AC Voltage outputs

Control	Independent control of amplitude, frequency and phase angle
Fourth voltage (Uz)	Can be set as zero sequence voltage, line voltage, or any value
Range	4×300V
Accuracy	error < 0.08 % rd. + 0.02 % rg.guar.,
	error < 0.03% rd. + 0.02 % rg. typ.,
Resolution	1mV(<30V), 10mV(30V~300V)
Output power	4 x 75VA typ. at 300V, 4 x 50VA guar., at 300V
	3x100VA typ. at 300V, 3x85VA guar. at300V
Output response time	<100μs
Distortion (THD%)	<0.05%type.,<0.1%guar.,at30V-300V
Frequency- Amplitudechacteristic	
	≤± 0.1%~± 0.5% (1Hz~1kHz)
Output time	Continuous at rated output condition
Operation indication	Overload, distortion, short circuit, over heat

Frequency

Sine signal	1Hz~1000Hz
Accuracy	0.3ppm
Resolution	0.001Hz
Output characteristic	Can simulate 2nd-20th harmonic or DC

Phase angle

Range	-360°~+360°
Accuracy	±0.05°type.,±0.1°guar.
Resolution	0.001°

Synchronization time between current and voltage outputs ≤10μs

DC current outputs

Range	3×0A~10A
Accuracy	± 5mA (0.2A~1A) ± 0.5% (1A~10A)
Resolution	1mA (0.2A~10A)
Output power	300W (30A 10V)
Operation indication	Overload, distortion, open circuit, over heat

DC Voltage outputs

Range	4x0V-300V
Accuracy	±50mV (2V～10V), ±0.5% (10～300V)
Resolution	10mV
Output power	100W at 300V

Binary inputs

Number	8
Input characteristics	0~400Vdc/400Vac Pek threshold or potential free
Time resolution	50μs
Max. measuring time	infinite
Debounce/Deglitch time	0~25ms
Counting function	< 3kHz at pulse width>150μs

Binary output

Number	4
Characteristic	Potential free relay contact (auto detection)
Break capacity ac	Vmax：250V(AC)/Imax：0.5A
Break capacity dc	Vmax：250V(DC)/Imax：0.5A

IEC61850 upgrade (Optional)

Interpretation hardware is in-built. Please contact the supplier for options to activate the IEC61850 software support function

Power Supply

Input	110-240Vac
Frequency	50/60Hz
Max. current	6.3A

Others

PC connection	Ethernet，10M/100M
Wireless control	Cellphone APP
GPS interface	DB9
Ground Socket (earth)	4 mm banana socket; front side
Dimension(WXHXD)	256mm × 110mm× 395 mm
Weight	8.8 kg

Test of IEC61850 compatible relay (optional)

Relay test equipment supplies analog voltage/current signal to relay and the GOOSE message from relay is received and interpreted by relay test equipment.