



PEGO GROUP (HK) COMPANY LIMITED

Professional on LED Test Equipment, Environment Test Apparatus,
Safety Test Equipment, Lab Equipment, probe and lamp gauges





COMPANY FILE

Pego Electronics is founded by PEGO GROUP in 2011, a professional high-tech enterprise engaged in developing, marketing and service for electronic test equipment. Our business scope includes IEC60061-3 gauges for lamp caps and holders UL498/VDE0620/BS1363-1 gauges for plug and socket IEC61032 IP code probes, UL probes, tumbling barrel test equipment, test vessels, ESD gun, surge generator, goniophotometer, integrating sphere, spectroradiometer, power supply and etc. Besides, we can provide customized service.

Nowadays, we have several production lines in China, we imported advance technology and machines to make the gauges to keep high precision, and use the world famous-brand components to make the equipment more reliable. We promise the customers can get the high quality products during the shortest lead time, and we can provide the third-lab calibration certificates if customer request. The Pego's products have been sold to the world wide, and widely used in labs, production line, QC and R&D departments with the features of high precision, simple operation, humanization design and good performance.

To Provide better user experience with better quality and better price is the motto of Pego. With the growth test items, PEGO hope to grow with our users, and search for better test solution for our users.

PEGO GROUP (HK) COMPANY LIMITED

Address: Flat/RM803, Chevalier House,45-51 Chatham Road South, Tsim Sha Tsui,Kowloon, Hong Kong
E-MAIL: salesHK@pegotester.com

PEGO ELECTRONICS (YI CHUN) CO., LTD.

ADDRESS::No. 429, Yichun South Road (Happiness Park), Yuanzhou District, Yichun, Jiangxi, 336000, China
E-MAIL: sales@pegotester.com
service@pegotester.com
TEL: 86-(0)795-3560528
Website: www.pegotester.com

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Dust Test Chamber

► Introduction:

The sand and dust test chamber helps to evaluate the ability of the equipment to withstand the effects of dust, it is apply to test various auto parts includes lamps, instrument, electric dust cover, steering system, door lock and etc., as well as inspection of product sealing performance. Meet the test requirement of IP5X and IP6X enclosure protection levels as specified in IEC60529.

The dust chamber is controlled by 7 inch touch screen and PLC system, the interior of the cabinet is equipped with lighting and power supply, which can be used for live dust-proof test of the sample to simulate a more realistic use environment. There is a mesh sample support plate inside the box for dust recycling, it is made of stainless steel and has a load capacity of 50KG.



IPX1~IPX8 Waterproof Test Equipment

► Introduction:

Waterproof test equipment are designed according to IEC60529-2001, they are applied to test the IP code regarding the second characteristics. The system is for classifying the waterproof degrees of protection provided by the enclosure of electrical equipment, like LED lamps, household appliance, communication device and etc.

- Drip Box (IPX1/IPX2): for IPX1 and IPX2 test. IPX1: $1 \pm 0.5 \text{ mm/min}$, IPX2: $3 \pm 0.5 \text{ mm/min}$ (1-3mm/min adjustable); Material: 304# steel (water tank), Panasonic speed regulator motor; Drop of aperture: $\varnothing 0.4 \text{ mm}$, pitch-row: 20mm; test time: 0-999min (adjustable). Test area: 150mm*800mm.
- Oscillating Tube (IPX3/IPX4): for IPX3 and IPX4 test. Swing pipe size: R600mm/R800mm/R1000mm; Material of pipe: SUS304 (OD:19mm, thickness: 2mm); Drop of aperture: $\varnothing 0.4 \text{ mm}$; spray nozzle angle: 1200 (IPX3), 1800 (IPX4). rainfall capacity: 0-10L/min (adjustable). Swing speed: 4s for IPX3, 12s for IPX4. Motor: made by Mitsubishi.
- 6.3mm/12.5mm Jet Nozzles (IPX5/IPX6): for IPX5 and IPX6 test. Aperture: 6.3mm (IPX5), 12.5mm (IPX6); rainfall capacity: $12.5 \pm 0.625 \text{ L/min}$ (IPX5), $100 \pm 5 \text{ L/min}$; distance between nozzle and test product: 2.5-3m. 7 inch LCD touch screen. Sample rotation base: $\varnothing 700 \text{ mm}$, speed: 1-5 rpm, height: 800-1300mm.
- Temporary immersion tank (IPX7): for IPX7 test. Dimension: 2000mm*1000mm*1500mm, height: 1650mm; water mark: 1000mm; material: 1.5mm 304# steel (inner), 201# steel (outer).
- Continuous immersion tank (IPX8): for IPX8 test. Diameter: 0.8m, height: 1m; pressure: 0-0.35MPa, accuracy: 0.25, range: 0.6Mpa; test time: 0-99h; max pressure: 0.5Mpa. Depth: 1-30m; material: 304# steel; connect with water supply with 3/4 inch high pressure steel.



IPX3/IPX4 Hand-Held Spray Nozzle

► Introduction:

The spray nozzle hand-held device is designed according to IEC60529 figure 5, it is it is apply to verify the protection against spraying water (IPX3) and splashing water (IPX4) for large size sample. The hand-held device is consisted by spray nozzle, moving shield, counterweight, hose and pressure gauge. The spray nozzle is made of brass and has 121 holes with diameter 0.5mm (1 hole at center, 1 inner circles of 12 holes at 30° pitch, 4 outer circles of 24 holes at 15°pitch). The moving shield is made of aluminum, the counterbalanced shield is in place for IPX3 test, the water pressure is adjusted to give the specified delivery rate, the pressure to achieve this delivery rate will be in the range of 50kPa to



150kPa, and it should be kept constant during the test, the test duration is 1min/m² of the calculated surface of the enclosure and with a minimum duration of 5 min. For IPX4 test, the counterbalanced shield is removed from the spray nozzle and the enclosure is sprayed from all practicable directions, the rate of water flow and the spraying time per unit area are same as IPX3 test.

IPX9K High Temperature and High Pressure Jet Spray test chamber

► Introduction

IPX9K High temperature and high pressure jet spray test chamber is designed according to IEC60529, DIN40050-9 figure 7 and ISO20653 figure 8 and 9. IPX9K fan jet and jet distribution for test device to verify protection against high pressure/steam jet cleaning. It is applied to electrical equipment in road vehicles, motors, electric components and auto parts to do the waterproof test. After the test, the user can judge if the performance of the product can meet the requirements or not, and then do the re-designing and improvement.



IPX9K High Pressure/Steam Water Jets Cleaning

Water projected in high pressure high temperature against the enclosure from 4 directions (00, 300, 600, 900) shall have no harmful effects. Test duration: 30s per direction, water volume: 14~16 litres per minute, pressure: 8000~10000 Kpa, temperature: 80±5°C, test distance: 100 to 150mm

UL Waterproof Test Equipment

► Introduction

The UL water spray test equipment is designed according to UL60507-ENGL 1999 figures 38.1 and 38.2, ANSI Z21.10.3-2004, ANSI Z21.58 figure 10/11 and CSA 4.3-2004, IEC 62368-1 annex Y.5.3/figure Y.2, meets the requirement of UL498, UL1598, UL153, UL154B, UL103, UL8750, UL1741, UL514B, UL1278, UL1571 and etc.

The water spray test apparatus is to consist of three spray heads mounted in a water supply pipe rack, the test is using fresh water. The outer enclosure is to be positioned in the focal area of spray heads so that the greatest quantity of water is likely to enter the outdoor enclosure, the water pressure is to be maintained at 34.5kPa at each spray head, the outdoor enclosure is to be exposed to the water spray for 1h.



Draught-Proof Enclosure

► Introduction

Draught-proof enclosure is designed according to IEC 60598.1 annex D, it is applied to thermal test of luminaire under the conditions of normal operation and abnormal operation. The draught-proof enclosure is rectangular, with a double skin on top and on at least three sides, and with a solid base. The double skins are of perforated metal, spaced approximately 150mm apart, with regular perforations of 1mm to 2mm diameter, occupying about 40% of the whole area of each skin. At the top of enclosure shall be mounted a ceiling plate or a dismantlable hanging bracket with a hook to fix the luminaire at the ceiling. At the bottom of side of enclosure shall install inlet hole for the purpose of wire connection. For the sake of installing luminaire, the enclosure is equipped with a sample holder, as per the standard, 2-layer black solid-board is applied to fix the luminaire under test.



Test Corner

► Introduction:

Test corner is designed according to IEC 60335-1 chapter 11 "heating". It is applied to provide a standard required condition for temperature rising test of electric appliance. The dimension and temperature measurement arrangement of test corner can be customized according to the sample under test.



High-Low Temperature and Humidity Chamber

► Introduction

High-low temperature and humidity chamber is a kind of environment test chamber, designed according to IEC60068-2-1, IEC60068-2-2 and IEC60068-2-3. It can accurately simulate the conditions of low temperature, high temperature, low temperature & humidity and high temperature & humidity. It is applied to the industries of electronic, battery, plastic, food, paper, car, LED lamps and so on. The chamber adopts TEMI300 temperature controller and LCD display, temperature and humidity can be controlled simultaneously.

- Humidity range: 20%~98% R.H.
- Temperature range: 0~+150°C, -20°C~+150°C, -40°C~+150°C, -60°C~+150°C (optional)



Tracking Index

► Introduction

The tracking index test apparatus is designed according to IEC60112, UL746A, GB.T4207, GB4706.1 and TMD 3628-92. On the surface of the solid insulating material, a certain voltage is applied between the platinum electrodes (2 mm × 5 mm), and drops the pollution liquid (0.1% NH₄CL) with specified droplet volume in fixed height (35mm) for 30s to evaluate the resistance of the surface of solid insulating materials under the combined action of electric field and contaminated medium, and its Comparative tracking index (CTI) and proof tracking index (PTI) are determined. Tracking index test apparatus is mainly used in the industries of lighting appliance, low voltage appliance, household appliance, motor, electronic appliance, instrument and etc. It is a good tool for research department, production department and QC department.



Proof Tracking Index (PTI): the voltage value of the material subjected to 50 drops of electrolyte without electrical tracking, the unit is volt.

Comparative Tracking Index (CTI): The highest voltage value at which the surface of the material can withstand 50 drops of electrolyte without forming electrical tracking, the unit is volt.

Test solutions: The preparation ratio is 1:1000, that is 0.1g of NH₄Cl with 100g (100ml) of distilled water

Needle Flame Test Apparatus

► Introduction

Needle flame tester is designed according to IEC60695-11-5(IEC60695-2-2). It is applicable to ignition hazard test, combustibility test of electronic industry and home electronic appliance. The equipment specifies a needle-flame test to simulate the effect of a small flame which may result from fault conditions, in order to assess product and material's ignition risk and fire resistance by a simulation technique the fire.

The Needle Flame Tester consists of a dia.0.9mm needle burner that tilts to 45 degree from the vertical and is fueled with butane gas. The fire hazard of the specimen is assessed by measuring the burning duration of the specimen, and any ignition of the wrapping tissue and white pine board below the specimen.



Glow Wire Test Apparatus

► Introduction

The glow wire tester is designed according to IEC60695-2-10 to IEC60695-2-13, UL746A, IEC829, DIN695 and VDE0471. The specific material and sharp heating wire is heated to specific temperature (550 °C~960 °C) for 1 min by max current, then vertical burns the EUT with certain pressure (0.95N) for 30s, then check if the test specimen and bedding material are burning, and count the burning time to judge the dangerousness of the specimen. Generally it is applied to test flammability, GWIT and GWFI of lighting lamps, electronic products and household appliances. The equipment is applicable to flame resistance test of all levels of QC departments and corresponding enterprises.



Glow wire testing is an electrical safety test designed to evaluate the flame resistant properties of plastic materials used in electrical devices. Its purpose is to protect against the risk of fire from overheated or electrically energised parts which may cause the plastic material to ignite. This may occur in normal use, under reasonable abnormal use, malfunction or failure of the product. The glow wire simulates an over-heated part which then comes into contact with plastic materials.

GWFI—glow-wire flammability index. Within 30 seconds after removing the glow wire, if the flame of the test sample is extinguished, the packaged crepe paper under the sample does not ignite, and the sample does not ignite, then the temperature can be recorded as acceptable. If the above conditions are not met, you will need to select a lower temperature for testing. The maximum temperature that can be achieved by three consecutive experiments plus 25k is the glow wire light-off temperature.

GWIT—glow-wire ignition temperature, GWIT is the lowest temperature at which the material will ignite and the burning time exceeds 5 s when the heating element is in contact with the sample

Horizontal and Vertical Flame Test Apparatus

► Introduction

Horizontal and vertical flame test apparatus is applied to simulate the fire at the early stage surround the electric and electronics appliance, and then evaluate the degree of fire hazard. It is designed according to UL94, IEC60695-11-4, IEC60695-11-3, IEC60950, IEC707, IEC60695-2-2, ISO1210 and etc.. The flammability test uses a bunsen burner of a specified size and specified gas source (methane or natural gas) to ignite the horizontal or vertical specimen for several times in a certain flame height and a certain flame angle, the fire hazard is evaluated by burning rate, after glow time, after flame time and damage length of the specimen. Horizontal and vertical flame test apparatus is applied to 50W vertical

flame test includes V-0, V-1, V-2, horizontal flame tester HB, and 500W vertical flame test includes 5VA, 5VB, HF-1, HF-2 and HBF. It is widely used in the R&D department, QC department and production department of lighting equipment, low-voltage apparatus, household appliance, motor and etc.. And also can be used in the industries of insulation material, plastic, non-metalic material, foam with a density of not less than 250kg/m' and other solid combustible material.



Ground Resistance Tester

► Introduction

Ground Resistance tester is applied to test the ground resistance between conductive parts and earth terminal. It is completely meet the requirements of GB, IEC, ISO, BS, UL, JIS and other standards. Ground resistance tester is mainly used in all kinds of motor, electronic appliance and etc.



► Parameter

Model	RK2678XM
Test Current	AC:5~32A (5~70A)
Current Resolution	±5%
Resistance range	10.0-200mΩ (32A)/200~600mΩ (10A)
Resistance resolution	±5%+3digit
Time	2~999.9s
Working power	220V, 50/60Hz
Alarming function	yes

AC/DC Withstand Voltage Tester

► Introduction

Withstand voltage tester is applied to the fields of household appliance, motor, lighting appliance, compressor and etc. to test the break voltage, leakage current and other electronic safety performance. The tester meets the requirements of IEC60335, IEC60598 and IEC60950.

► Parameter

- Output voltage (AC): 0-5KV, 0-50KV, 0-100KV
- Output voltage (DC): 0-5KV, 0-50KV, 0-70V, 0-140V
- Leakage current (AC): 0-2/20/40/100/200mA
- Leakage current (DC): 0-2/10/20mA
- Wave sharp: 50Hz/60Hz sine wave
- Accuracy: $\pm 5\%$



AC/DC Insulation and Withstand Voltage Tester

► Introduction

Insulation and withstand voltage tester is a kind of electric safety test equipment, widely used in the fields of transformer, equipment, components and etc. to test the performance of insulation and withstand voltage. The equipment can give an alarm at current and resistance, and have 5 groups memories.

► Parameter

- Test voltage: 0-5KV (AC), 0-6KV (DC)
- Leakage current: 0.10~12.00mA (AC), 0.01-5.00mA (DC)
- Output characteristics: Single phase 47~63Hz, 115V/230V AC $\pm 15\%$
- Accuracy: $\pm(5\% \text{ reading} + 2 \text{ counts})$ DC: voltage $\geq 500V$



Leakage Current Tester

► Introduction

RK2675 series leakage current tester is applied to test the leakage current caused by power supply, it's an important index to judge the quality of electronic appliance. Leakage current tester is widely used in household appliance, compressor, motor, cable and etc. RK2675 series tester has the alarming function, and the test time and value can be preset.

► Parameter

- Output voltage: 50-430V, 0-250V
- Leakage current(AC): 0-2mA, 2mA-20mA, 0.01mA-20mA
- Resolution of current: 0.01mA



Temperature Rise Test Nickel Lampholder

► Introduction

Test lampholders are designed according to IEC60360 and GB24392. It is consisting of a metallic sleeve fitted with a thermocouple. A thermocouple shall be permanently attached to the lampholder sleeve, a spring wire shall be used around the outside of the sleeve. The test lampholder sleeve is made by nickel with content of 99% min, and the vickers hardness shall be 135⁰. It is applied to check incandescent lamp.

► Parameter

- Nickel: 99% min
- Thickness: 0.5mm±0.02mm
- Vickers hardness: 135±15
- Spring material: Φ 0.8mm, 1~1.5 turns around the sleeve



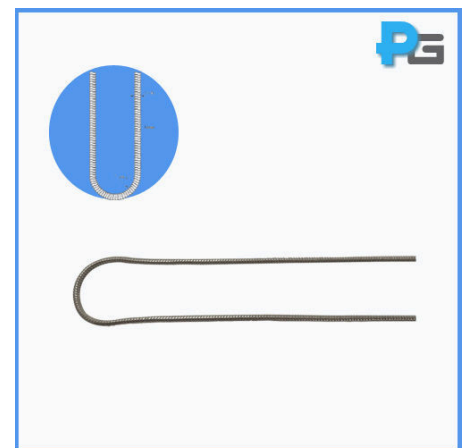
No.	Description	Standard
1	E14/E20 lampholder	IEC60360 fig.3, inner size: 13.5mm
2	E17/E20 lampholder	IEC60360 fig.4
3	E26/E27 lampholder	IEC60360 fig.5
4	E39/E40 lampholder	IEC60360 fig. 6
5	E14 lampholder	IEC60360 fig. 7, inner size: 15mm
6	E14 lampholder	IEC60360 fig.8, inner size: 17mm
7	B22 lampholder	IEC60360 fig.9, inner size: 26mm
8	B15 lampholder	IEC60360 fig. 10, inner size: 14.5mm
9	B15 lampholder	IEC60360 fig. 11, inner size: 22mm
10	B15 lampholder	IEC60360 fig. 12, inner size: 17.5mm
11	B22 lampholder	IEC60360 fig. 13, inner size: 21.5mm
12	E12 lampholder	IEC60360 fig. 14

Test Chain

► Introduction

Test chain is designed according to GB7000.1 and IEC60598-1 clause 4.26.3 & figure 29 . It is mainly applied to provided a prevent the impairing of safety due to unintended short-circuiting of uninsulated accessible SELV part of opposite polarity. The test chain is made by copper zinc alloy (Cu: 30%, Zn: 37%), the chain shall have a resistance value of 2.5Ω/m±20% when stretched with a load of 200g/m.

- Made of 63%Cu/37%Zn.
- Resistance value: 2.5Ω/m±20%
- Length: 1.1m
- Diameter: φ2mm



Inclined Plane Device

► Introduction

Inclined plane stability tester is applied to test the stability and mechanical hazards of floor standing units in normal use, it is conforms to the standards IEC60335-1 clause 20.1, IEC60065 clause 19.1, IEC60950 clause 4.1.1 and etc..

Inclined plane device is used to test the stability performance of household and similar electrical appliances which used on a table or on the floor rotating at a certain angle of inclination.

Inclined plane device is consisted by a surface and an angle adjusting device, the angle is adjustable at the range of 0 to 30 degrees, the rotation speed is 1rpm. The appliance is placed in its intended position of use a plane, inclined at an angle of 10° or 15° to the horizontal, and then rotated slowly through an angle of 360° about its normal vertical axis, during the tests, the apparatus shall not overturn.



Dielectric Strength Test Instrument

► Introduction

The equipment is designed according to IEC60065 and UL1310, It's mainly used for testing thin-layer insulation material electric strength. Stand part of the test device using the whole structure, made of 304 plate material processing. To improve the insulation board and creepage dielectric properties, surface brushed polished, bottom bracket the minimum distance from the edge of $>35\text{mm}$, the altitude of 2000 meters designed to meet the strength test requirements of 12KV.



IK01 to IK06 Universal Spring Hammer

► Introduction

spring hammer is designed according to IEC60068-2-75, and meet the requirement of IEC60068-2-63, IEC60598 and etc.. IK ratings are defined as IKXX, XX is a number from 00 to 10 which indicates the degrees of protection provided by enclosures against external mechanical impacts. it is suitable for outer casing, operating rod, handle, knob, indicator light, signal lamp and lampshade of household and similar electronic and electrical products and their accessories and similar equipment, to assess the safety performance and strength level of the product. The universal spring hammer can be adjusted to complete the impact tests of IK01 (0.14J), IK02 (0.2J), IK03 (0.35J), IK04 (0.5J), IK05 (IK0.7J) and IK06 (1J).



IK01 to IK07 Single Operated Spring Hammer

► Introduction

K07 spring hammer is designed according to IEC60068-2-75, and meet the requirement of IEC60068-2-63, IEC60598 and etc.. IK ratings are defined as IKXX, XX is a number from 00 to 10 which indicates the degrees of protection provided by enclosures against external mechanical impacts. it is suitable for outer casing, operating rod, handle, knob, indicator light, signal lamp and lampshade of household and similar electronic and electrical products and their accessories and similar equipment, to assess the safety performance and strength level of the product.



► Parameter

IK level	IK07	IK01	IK02	IK03	IK04	IK05	IK06
Impact energy	2J	0.14J	0.2J	0.35J	0.5J	0.7J	1J
Error	±0.08J	±0.08J					
Equivalent mass	500g±5g	250g±5g					
Radius of hammer	R25mm	R10mm					
Weight	1250g	1250g					
Trigger force	<20N	<10N					
Material of hammer	steel	Polyamide					
Material of shell	Stainless steel	Stainless steel					

IK07 to IK10 Pendulum Impact Hammer Test Equipment

► Introduction

The IK mechanical impact test apparatus is designed according to IEC60068-2-75 Test Ehc and IEC62262 (equivalent EN62262), and can meet the test requirements of IEC60598, EN50102. The IK Code was originally defined in European Standard BS EN 50102:1995 and amended in 1998, following its adoption as an international standard (IEC 62262) in 2002, the European standard was renumbered EN 62262. The IK code is from 00 to 10, and corresponding impact energy is from 0.14J to 20J.

IK pendulum hammer is for IK07 to IK10 testing, the hammer is made by steel, the working principle is : the sample is placed in normal, then adjust the impact points, and position the impact device, then release the hammer to freely impact the hammer. The impact angle and impact height are adjustable.



IK07 to IK10 Vertical Impact Hammer Test Equipment

► Introduction

IK Vertical impact hammer designed according to IEC60068-2-75 test Ehc and IEC62262 (equivalent EN62262) , and can meet the test requirements of IEC60598, EN50102. The IK code is from 00 to 10, and corresponding impact energy is from 0.14J to 20J.

IK vertical impact hammer is for IK07 to IK10 testing, the hammer is made by steel. The hammer is released by electromagnet to ensure instantaneous release and vertical drop, the bottom of guide pipe contact with the surface of sample, that is the fall height, user do not need to adjust, it is easy to operate.



2J to 50J Striking Elements

► Introduction

The striking elements is designed according to IEC60068-2-75 table 1 and table 2. When the operator holds the striking element to release the hammer at the drop height specified in Table 2, the corresponding impact energy is generated. The striking elements can equip with guideway for free fall impact testing, and the guideway has fixed height.

Model	2J	5J	10J	20J	50J
Equivalent mass/KG	0.5	1.7	5	5	10
Fall Height \pm 1%mm	400	300	200	400	500
Material	SUS304 stainless steel				



Spring Hammer Calibration Device

► Introduction

The calibration device is designed according to GB2423.44 Annex A, GB2423.55 Annex B, IEC60068-2-63 and IEC60068-2-75 standard Annex B. It's applied to check the impact energy accuracy of spring hammer calibration device.



EMI Test System

► Introduction

KH3939 EMI receiver is an automatic AIO equipment, fully meet the demand for disturbance power test of power line. And work with artificial network can do the disturbance power test. KH3939 has the features of stability and operability, the data can be output by USB Conveniently. The equipment can connect with external device, like printer, mouse, keyboard. And built in high-capacity hard disk, which can save a lot of files. Adopts windows system, users can operate it easily. As KH3939 receiver can work alone without other control appliances, it solves the problem of the interference source. The system completely meet the requirements of CISPR16-1, GB17743, FCC, EN55015 and EN55022.



► Parameters:

- Frequency range: 9kHz-300MHz(KH3939), 9kHz-30MHz (KH3935)
- Frequency resolution: (9kHz-150kHz): 30Hz; (150kHz-30MHz): 1kHz; (30MHz-300MHz) : 10kHz
- Frequency stability: 10^{-6}
- Input Impedance: 50Ω
- Test pattern: AVG, QP, PK
- Insertion Loss: 10dB+/-1dB
- Current(max):10A
- Terminal voltage measurement range: 0dB -120dB (S/N=6dB 1mV=0dB)
- Sweep bandwidth: 200Hz, 9kHz, 120kHz
- AIO machine, Windows XP system, can connect with keyboard and mouse, USB port to output the data.

Voltage Dips and Short Interruption Generator

► Introduction:

Voltage dips and short interruption generator is designed to simulate voltage dips, short interruption and voltage variations. The generator is completely met the requirements of IEC61000-4-11 and GB/T17626.11. It is widely apply to all kinds of electronic equipment.

► Parameter:

- Wave Generator:AC sine wave
- Voltage dips:0~265V±10% (1V step)
- Dip phase set:0~359°(1°step)
- IEC level built in:0% 40%, 70%, 120% UT
- Trigger mode:Counting, 50ms
- Durations for voltage dip:0001~9999 cycles (1cycles step)
- Interval for voltage dip:0001~9999cycles (1 cycles step)



Combined Wave Surge Generator

► Introduction

Combined wave surge generator is designed according to IEC61000-4-5 and GB/T17626.5, and completely meet the requirements of the standards. It is widely used in the fields of industry control equipment, house-holding appliance, medical electronics, communications electronics, components, auto control equipment and etc.

Lightning surge generator is to simulate the surge voltage caused by switching transient and lightning transient, the surge test is to found out the surge voltage effect to EUT in normal working condition.



The lightning surge generator can generates both 1.2/50, 8/20 μ s combination wave. The test voltage is up to 6KV, user can choose and define the test levels. The parameters of waveform for surge voltage and waveform for surge current is strictly meet the standard requirements of IEC61000-4-5. It is built in a 300V/10A coupling and decoupling network.

Electrostatic Discharge Generator

► Introduction:

ESD simulator (ESD gun) is completely meet the requirements of IEC61000-4-2 and GB/T17626.2. The ESD generator is designed for the assessment of electrical and electronic equipment to withstand ESD performance. Electrostatic discharge generator is widely apply to the fields of industry control equipment, household appliance, chemical electronics, communication electronics, components, auto control equipment and etc.

ESD generator is to simulate electrostatic discharge, it belongs to EMC test according to IEC61000-4-2, there is two test methods: contact discharge and air discharge, the test voltage extends from 0.1KV to 20KV, user can freely choose and define the test grade.



The ESD generator is consisted by ESD generator, ESD gun and two electrodes (cone sharp electrode is for contact discharge, and ball sharp electrode is for air discharge), the parameters of rising time, peak current and current at 30ns and 60ns are strictly meet the requirement of IEC61000-4-2.

EFT Immunity Measurement

► Introduction:

Electrical fast transient generators is designed according to IEC61000-4-4. They are widely applied to the fields of industry control appliance, household appliance, medical equipment, components, auto control equipment and etc.

The electrical fast transient/ burst generator is to simulate the electrical fast transient or burst, the repetitive fast transient test is a test with bursts consisting of a number of fast transients, coupled into power supply, control, signal and earth ports of electrical and electronic equipment.

The test voltage of burst generator is from 0.25KV to 5KV, which can cover all the test levels, and user can define the test level. The high amplitude, short rise time, high repetition rate are completely meet the requirement of IEC61000-4-4. The electrical fast transient/burst generator is built in a 380V/16A CDN.



Ring wave Generator

► Introduction:

Ring wave generator is completely meet the requirements of IEC61000-4-12, GB/T17626.12 and ANSIC62.41/45. Ring wave generator is used for the simulating electrical network, the power supply of the reactive load the control line switch, as well as sensing the ring wave of the low voltage cables terminal equipment caused by the disconnection of the power circuit, fault and insulation breakdown or lightning stroke. It is widely used in electronic equipment.

► Parameter:

- Voltage Oscillation frequency (open): $100\text{kHz} \pm 10\%$
- Output voltage(open): $(250\text{V} \sim 4000\text{V}) \pm 10\%$
- Frontier(open circuit voltage, T1, 10%~90%): $0.5\mu\text{s} \pm 30\%$
- Frontier(short circuit voltage, T2, 10%~90%): $\leq 0.9\mu\text{s}$



1.2/50μs Impulse Voltage Generator

► Introduction

The impulse voltage generator (high voltage surge generator) is in line with the requirements of IEC60225-5, IEC60060, IEC60950, IEC60335-1, GB14711 and etc. It is applied to do insulating performance test of electrical and electronic products like small power motor, low voltage electrical appliances, householding appliance, relay and etc.

The impulse voltage generator has a no-load wave shape corresponding to the 1.2/50 μs standard impulse specified in IEC 61180-1. The impulse test voltage is from 0.5KV to 10KV.



PG-1800S Goniophotometer Test System

► Introduction:

PG-1800S Goniophotometer Test System is designed according to LM-79 and CIE standard regarding C-γ and B-β test solutions, widely applied to test LED, HID, CFL and other luminaire, like floodlight, downlight, panel light, streetlight and so on. The measuring parameters includes spatial intensity distribution curve, cross section spatial intensity distribution curve, isolux distribution curve, luminance limitation curve, area luminous flux, luminaires efficiency, UGR glare class, total luminous flux, effective luminous flux, utilization factor and etc. All the test data can be saved as IES file which can input to Dialux directly, also the data can be output as PDF and excel files for analysis purpose.

► Configuration:

- PG-1800S goniophotometer
- Luminous intensity standard lamp
- 105 digital power meter (AC)
- 3005 CC&CV DC power supply
- 500VA AC power supply
- 19 inch cabinet



PG-1200A Luminous Intensity Distribution Test System for LED Lamp

► Introduction:

PG-1200A luminous intensity distribution test system is applied to test the total luminous flux, isocandela diagram, isolux diagram, IES file and other photometry data. Equip with dark chamber and light diaphragm, the dark room is needless. The test system is applied to test LED reflection lamp fixture, meet the requirements of LM-79, IEC and CIE121.



PG-1S CCD Spectroradiometer and Integrating Sphere Test System

► Introduction:

PG-1S spectroradiometer and integrating sphere system is applied to LED luminaire and lighting fixture for photometric and colorimetric testing. Generally, it can test LED chips (includes 3014, 3528, 5050, power LED), LED tube, bulb, LED lighting fixture, and also can test spotlight, downlight, ceiling light and etc. The system completely meet the requirements of CIE,GB and LM-79.

Test parameters: chromaticity coordinates (x,y, u,v), correlated color temperature (CCT), SDCM, peak wavelength, spectrum distribution, pupil lumen, radiation flux, color shift, color ratio, color purity, luminous flux, rendering index, luminous efficiency, power and etc.



PG8000 Spectroradiometer and Integrating Sphere Test System for LED Chips and LED Modules

► Introduction

PG8000 Spectroradiometer and integrating sphere test system is designed for LED chips and LED modules to test the photometric and colorimetric performance. Built in 30V/2.5A DC power supply, the PG8000 spectroradiometer can power the LED under test directly. And adopts the CCD detector, the test can finish in 2s. It is a perfect system for incoming inspection.

► Parameters:

- Test parameters: chromaticity coordinates, correlated color temperature, color rendering index, SDCM, wavelength, half bandwidth, dominate wavelength, purity, luminous intensity, luminous intensity, efficiency, forward voltage, reverse leakage current and etc.
- Data can output as EXCEL and PDF files



Portable Spectrum-Illuminance Meter

► Introduction

Portable Spectrum-illuminance meter is an equipment integrated the test functions of spectrum, colorimetry, illuminance, radiate and etc. Adopts 5 inch LCD screen to display all kinds of parameters and curve at real time, built-in CCD sensor and advanced information processing chip to ensure the stability of the optical signal. It is easy to operate and can realize site test. This equipment can not only test LED, CFL and HID luminaires, and also can apply to the conditions of stage design, architectural lighting, grow lights and engineering application.



Hand-Held Illuminometer

► Introduction

The illuminometer is applied to test the illuminance at site, it adopts high-speed AMR processor and high-precision optical sensor, and has the features of lightweight design, stable performance, high precision and easy to carry. Equipped with 3.5-inch IPS LCD touch screen, making the device only has size of 65mm * 147mm * 18.5mm and weight of 180g. It is widely used in home, shopping mall, school, factory, greenhouse, outdoor and other field lighting measurement fields



Hand-Held Luminometer

► Introduction

The luminometer is applied to test the luminance at site, it adopts high-speed AMR processor and high-precision optical sensor, it has the features of lightweight design, stable performance, high precision and easy to carry. Equipped with 3.5-inch IPS LCD touch screen, making the device only has size of 65mm * 147mm * 18.5mm and weight of 180g. It is widely used in home, shopping mall, school, factory, greenhouse, outdoor and other field lighting measurement fields



Switch Plug and Socket-outlet Life Tester

► Introduction

Switch plug and socket life tester meets the requirements of IEC60884-1 and VDE0620. It is suitable for aging test of rocker switch, snap switch, key switch, plug, socket-outlet and coupler of household appliance and similar appliance. Its aim is to check whether the switch is able to withstand the mechanical damage and electrical fatigue damage in normal use, and if there are adhesion phenomena or prolonged closed or disconnected phenomena occur, inspect whether there are excessive wear and other harmful consequences with it. Equipped with power load (resistive, inductive, capacitive), it can do live test, normal operation and breaking endurance test.

The life tester uses the cylinder as the power to drive the slide rail assembly with clamps to do reciprocating rectilinear movement, thereby completing the insertion and extraction of the plug and the socket. The operating frequency and switching time are controlled by PLC and LCD display.



Power Load Cabinet

► Introduction

Power Load cabinet is a support equipment designed according to IEC60884-1 and UL1054, it is applied to simulate the electrical appliance in charged state, then to do the aging test and on-off ability test, the load current and surge current can be customized according to the user's demand. This equipment adopts cabinet type, the shell is made by iron plates with coatings, and with four trundles to move. Inductor resistor chip combination inside the cabinet, strong wind cooling mechanism, voltage regulation system, high-power electricity reactor, various electrical control components, control circuit board and output terminal block and etc.



► Parameter:

Load current	0~30A (adjustable)
Load voltage	5~300V (adjustable)
Power factor	0.3~0.999
On-off loop counter	1~999999 (pre-settable)
Working station	1, 2, 4 (optional)
Working power	220V/50Hz

Socket and plug Withdrawal Force Test Apparatus

► Introduction

Maximum and minimum withdrawal force testing equipment is designed according to IEC60884 figure 18/19 and VDE0620, it is applied to evaluate the maximum and minimum pull-out force of the socket. The apparatus is suitable for plugs and sockets with rated voltage not exceeding 250V and rated current less than 16A.



Tumbling Barrel Test Machine

► Introduction

Tumbling barrel is designed according to IEC60598-1 clause 4.13.6 and figure 25 for plug ballast, transformers and socket outlet. The tumbling barrel is turned at a rate of five revolutions per minute and 10 falls per minute, the sample falls from a height of 50cm on to a steel plate 3 mm thick. After the test, the sample shall show no damage.



Plug-in Test Apparatus

► Introduction

Plug-in test apparatus is designed according to IEC60065 clause 15.4.1 and figure 11, IEC60950-1 clause 4.3.6, IEC60884-1 clause 14.23.2 and etc..It is applied to check the socket outlet mechanical strength of direct plug-in equipment. A device provided with pins intended to be introduced into fixed socket-outlets shall not impose undue strain on these socket-outlets, the torque shall not exceed 0.25Nm.



BS1363 Plug and Socket Gauge

Description	Figure number	QTY
Test pin	BS1363-1:1995 figure 1	1
Apparatus for mechanical strength test on resilient covers	BS1363-1:1995 figure 2a	1
Hardwood block for Figure 2a	BS1363-1:1995 figure 2b	1
Gauge for plug pins	BS1363-1:1995 figure 5	1
Apparatus for testing plug cover fixing screws	BS1363-1:1995 figure 6	1
Mounting plate	BS1363-1:1995 figure 7	1
Plug pin deflection test apparatus for resilient adaptors	BS1363-1:1995 figure 8	1
Apparatus for abrasion test on insulating sleeves of plug pins	BS1363-1:1995 figure 9	1
Apparatus for pressure test at high temperatures	BS1363-1:1995 figure 10	1
Go gauge for socket-outlet	BS1363-2:1995 figure 11	2
Contact test gauge	BS1363-2:1995 figure 12	1
Test apparatus and circuit for use with contact and non-contact test gauges	BS1363-2:1995 figure 13	1
Non-contact test gauge	BS1363-2:1995 figure 14	1
Turning moment gauge	BS1363-2:1995 figure 15	1
Withdrawal pull gauges for effectiveness of contact	BS1363-2:1995 figure 16	2

UL498 Plug and Socket-Outlet Gauge

Description	Figure number	QTY
Articulate probe with web stop	UL498 Figure 9.1	1
Probe	UL498 figure 10.1	1
Flat probe	UL498 figure 31.1	1
Reference probe	UL498 figure 69.1	1
Improper insertion test blades	UL498 figure 94.1	2
Test plug	UL498 figure 105.1	2
Test blade	UL498 figure 105.2	1
Receptacle test fixture	UL498 figure 118.1	1
Push out tool	UL498 figure 118.3	1
Bridge	UL498 figure 118.5	1
Test pin A	UL498 figure 119.1	1
Test pin B	UL498 figure 119.2	1
57g ground pin	UL498 figure 119.3	1
113g ground pin	UL498 figure 119.4	1
No.14AWG test pin	UL498 figure 129.2	1
Test probe	UL498 figure 132.1	1
Fixture for assembly security test	UL498 figure 144.2	1
Over size ground pin	UL498 figure SD 13.2	1

IEC60061-3 Lamp Cap and Holders “Go” and “Not Go” Gauges

► Introduction:

The lamp cap and holder gauges are designed according to IEC60061-3:2004, they are applied to quality test of E14 cap. The structure and waveform are calculated by PC to reach high precision, and the appearance looks nice. The material is applied alloy steel. All the products equip with third-lab certificate authorized by CNAS.

► Parameter

• E14

Figure numbers: 7006-27F-1, 7006-28B-1, 7006-55-2, 7006-54-2, 7006-27G-1, 7006-25-7, 7006-26-4, 7006-30-2, 7006-30A-1, 7006-31-4

• E27

Figure numbers: 7006-27B-1, 7006-28A-1, 7006-27C-1, 7006-50-1, 7006-51A-2, 7006-51-2

• E26

Figure numbers: 7006-27D-3, 7006-29L-4, 7006-29A-2, 7006-29-3, 7006-29C-2, 7006-29A-2

• E12

Figure numbers: 7006-27H-1, 7006-28C-1, 7006-27J-1, 7006-32-1

• G13

Figure numbers: 7006-45-4, 7006-44-4

• B22D

Figure numbers: 7006-10-8, 7006-11-8, 7006-4A-2, 7006-3-1, 7006-19-2



IP Code Test Probes

► Introduction

IP code test probes are designed according to IEC61032 and IEC60598, it is applied to verify the protection against access to hazardous parts and foreign objects. The IP code test probes includes:

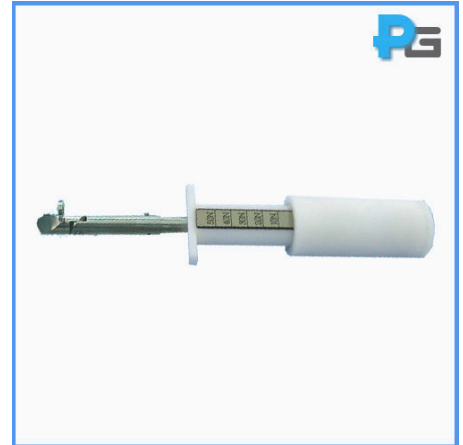
- test probe A (Sphere: $\Phi 50$ with handle) for IP1X testing
- test probe B (Jointed test finger) for IP2X testing
- test probe C (Rod: $\Phi 2.5$ -length 100) for IP3X testing
- test probe D (Wire: $\Phi 1.0$ -length 100) for IP4X testing
- test probe 1 (Sphere: $\Phi 50$) for IP1X testing
- test probe 2 (Sphere: $\Phi 12.5$) for IP2X testing



Test Fingernail

► Introduction

Finger nail probe is in accordance with the Figure 7 of IEC60335.1 and GB4706.1. Test finger nail is mainly used for the puncture-proof test of the accessible part of the solid insulation, also it is used to test whether the non-removable parts of an electric shock or release moving part are able to withstand the mechanical stresses that occur during normal use. The test fingernail is consisted by fingertip, middle finger, finger seat.



Test Hook

► Introduction

The test hook is designed according to IEC60065 clause 9.1.7 and figure 4. It is mainly applied to do the protection test against electric shock. During the test, the enclosure should have sufficient strength to withstand the damage of external forces and prevent electric shock damage, the hazard live parts shall not become accessible. The test request a directed outwards force of 20N should be applied to all points for 10s.



Wedge Probe

► Introduction

Wedge probe is designed according to UL60950 figure NAF.2 and NAF.3, IEC60950 and IEC62368 figure V.4, it is for safety test of paper shredder inlet



Articulate Probe with Web Stop

► Introduction

Articulate probe with web stop is designed according to IEC62368 figure V.1, meet the requirements of UL507 figure 6.5 (PA100A), UL1017 figure 2, UL1062 figure 1.2, UL1310 figure 14.2, UL982 figure 7.1, UL474 figure 5.1, UL6500 figure 14, UL60065 figure 14, UL1082 figure 7.2 and UL1278 figure 8.3. Palm simulator and restricted joint movement simulates human finger movement. It's made of nylon. Bell-Core accessory available. The handle is made of nylon. The finger is made of stainless steel.



Ball Pressure Test Apparatus

► Introduction

The ball pressure test apparatus is designed according to IEC60695-10-2, IEC60335, IEC60601, GB4706.1 and etc. the surface of the part to be tested is placed in the horizontal position and a steel ball of 5 mm diameter is pressed against the surface with a force of 20 N. The test is performed in a heating cabinet at a temperature of $75^{\circ}\text{C} \pm 2^{\circ}\text{C}$. The ball is withdrawn after 1 h and the diameter of the impression made by the ball is measured. An impression greater than 2 mm in diameter constitutes a failure.



Test Probe for Measuring Surface Temperatures

► Introduction:

The probe designed according to the requirements of the IEC60335-2-11 and IEC60335-2-6 standard. It's mainly used to test the temperature rise of the front and side of the cooker and oven, 4N force is applied.

- Copper Sheet: Diameter 5mm, thickness 0.5mm
- Thermocouple: 0.3mm diameter, American OMEGA K type
- Insulated Pipe: Polycarbonate, inner diameter 3 mm, outer diameter 5 mm
- Handle: With 4N force



EN60350-2 Stainless Steel Standard Cooking Vessels for Cookware

► Introduction:

The vessels are designed according to EN60350-2:2013 figure Z1, the side wall of the vessel is made of 1.4301 stainless steel with thickness $1\text{mm}\pm 0.05\text{mm}$, the bottom of the vessel is made of 1.4016 stainless steel with thickness $6\text{mm}\pm 0.05\text{mm}$, the cookware is cylindrical without handle or protrusions. And the lid is made of aluminum, and thickness is $2\text{mm}\pm 0.05\text{mm}$, each hole circle of the lid has a diameter of $16\text{mm}\pm 0.1\text{mm}$, the holes shall be evenly distributed on the hole circle. The lid is flat and can accommodate a temperature sensor in the center.

Sizes: $\Phi 120\text{mm}$, $\Phi 150\text{mm}$, $\Phi 180\text{mm}$, $\Phi 210\text{mm}$, $\Phi 240\text{mm}$, $\Phi 270\text{mm}$, $\Phi 300\text{mm}$, $\Phi 330\text{mm}$



Low Carbon Steel Test Vessels for Induction Hotplates

► Introduction:

The low carbon steel test vessels are designed according to IEC60335-2-9:2002 figure 104, IEC60335-2-6 Fig. 102, GB4706.14-2008 figure 10 and GB4706.22-2008 figure 102, they are applied to test the induction hotplates. The vessels are made of low carbon steel having a maximum carbon content of 0.08%, and the surface is sprayed with high temperature non-stick coating.

Sizes: $\Phi 110\text{mm}$, $\Phi 145\text{mm}$, $\Phi 180\text{mm}$, $\Phi 220\text{mm}$, $\Phi 300\text{mm}$



Unpolished Aluminum Standard Cooking Test Vessels

► Introduction:

The vessels is designed according to IEC60335-2-9:2002 figure 103, IEC60335-2-6 Fig. 101 and EN30-1-1:2008 figure C2, GB4706.14-2008 figure 103 and GB16410-2007 figure 7. The vessels are made of unpolished commercial quality aluminum, have flat bottom and covered with a lid.

Sizes: $\Phi 110\text{mm}$, $\Phi 145\text{mm}$, $\Phi 180\text{mm}$, $\Phi 220\text{mm}$, $\Phi 300\text{mm}$



GB21456 Q235 Low Carbon Test Vessels

► Introduction:

The standard pan is designed according to annex A, GB21456-2014, it is applied to evaluate the energy efficiency and energy efficiency grades. The pan and the lid are made of Q235 having a maximum carbon content of 0.08%, and the thickness of the lid (t) is 1mm, the bottom of the pan can not convex outward, and the maximum concavity at the bottom is 0.6% times the effective diameter. The surface of the pan and the lid should be smooth and polished to prevent rust.

Sizes: $\Phi 140\text{mm}$, $\Phi 200\text{mm}$, $\Phi 220\text{mm}$, $\Phi 280\text{mm}$



EN60350-2 Low Carbon Steel Test Pots

► Introduction:

The vessels is strictly designed according to IEC/EN60350-2 Figure 4, and made of low carbon steel having a maximum carbon content of 0.08%, the maximum concavity of the base of the vessels is to be not more than $0.006a$, the lid is adapted to accommodate a stirrer, the base of the saucepan shall not be convex.

Sizes: $\Phi 145\text{mm}$, $\Phi 180\text{mm}$, $\Phi 220\text{mm}$



EN30-1-1 Aluminum Sauce Pans for for Gas Burners

► Introduction:

The Standard aluminum sauce Pans are designed according to EN30-1-1 Annex C.1 and table C.1. The test pans are made of commercial quality aluminum with density of 2700kg/m^3 , and use a tightening joint to secure the mercury thermometer with a through hole range of 3.0 mm -7.0 mm, the stir tray is made by aluminum plate with thickness 1mm.

Size: $\Phi 200\text{mm}$, $\Phi 220\text{mm}$, $\Phi 240\text{mm}$, $\Phi 260\text{mm}$, $\Phi 280\text{mm}$, $\Phi 300\text{mm}$, $\Phi 320\text{mm}$, $\Phi 340\text{mm}$





PEGO GROUP (HK) COMPANY LIMITED

Add: Flat/RM803, Chevalier House, 45-51 Chatham Road South,
Tsim Sha Tsui, Kowloon, Hong Kong
E-MAIL: salesHK@pegotester.com

PEGO ELECTRONICS (YI CHUN) COMPANY LIMITED

Add: No. 429, Yichun South Road (Happiness Park), Yuanzhou District,
Yichun, Jiangxi, 336000, China
E-MAIL: sales@pegotester.com service@pegotester.com
TEL: 86-(0)795-3560528
Website: www.pegotester.com