Multifunctional Combination Generator

LCG-5411【Product Overview】

The LCG-5411 is an intelligent, highly integrated multifunctional combined generator developed by Lioncel. It integrates multiple test items including electrical fast transient burst testing, lightning surge testing, single-phase AC voltage dip, DC voltage dip, and power frequency magnetic field testing. Controlled by a full-color capacitive touchscreen, it is equipped with built-in coupling and decoupling networks. As a mature product, it provides a reliable basis for users' electromagnetic compatibility testing.

Compliance Standards

IEC 61000-4-4、GB/T 17626.4、IEC 61000-4-5、GB/T 17626.5、IEC 61000-4-8、GB/T 17626.8、IEC 61000-4-11、GB/T 17626.11、IEC 61000-4-29、GB/T 17626.29、IEC 61000-4-9、GB/T 17626.9.

Application Fields

Industrial equipment, electrical power meters, automotive electronics, medical devices, lighting fixtures, communication transmission equipment, audio-visual equipment, low-voltage electrical appliances, electronic components, electric tools, information technology equipment, railway and aerospace electrical appliances, instrumentation.

Technical Features

- The 7” color capacitive touchscreen offers a user-friendly and powerful human-machine interface (HMI)；
- The interface allows for direct and rapid test program creation, enabling intelligent test operation；
- It features a built-in calibration factor self-calibration function, facilitating easy user calibration；

- The communication interface design is comprehensive, coming standard with RS485, USB, LAN, and wireless WIFI；
- Both surge and burst generators utilize high-voltage, high-speed semiconductor switches, capable of generating excellent interference waveforms and characteristics；
- The burst generator has a peak value above 5 kV, and the surge generator has a peak value above 6 kV, providing sufficient test margin for users；
- The highly integrated design saves test space, allowing a single machine to fulfill all user testing needs.

Parameter List

Specification Model	LCG-5411
Interference Types	Electrical Fast Transient (EFT) immunity, Lightning surge immunity, Pulse magnetic field immunity, Single-phase AC voltage dip immunity, DC voltage dip immunity, Power frequency magnetic field immunity
EFT Test Parameters	
Output polarity	Positive / negative / positive and negative automatic alternate
Open-circuit peak voltage	200 V ～ 5000 V±10% 10 V step
Repetition frequency	0.1 kHz ～ 1000 kHz 0.1 kHz/step ±20%
50 Ω Calibration Characteristic at Source End	Peak voltage: (set voltage / 2) ± 10% Rise time: 5 ns ± 30% Half-peak time: 50 ns ± 30% pulse front edge
1 kΩ Calibration Characteristic at Source End	Peak voltage: (set voltage* $\frac{1000}{1050}$)±20% Rise time：5 ns±30% Half-peak time：35 ns ～ 150 ns
50 Ω Calibration Characteristic at CDN End	Peak voltage: (set voltage / 2) ± 10% Rise time: 4 ns to 7 ns Half-peak time: 30 ns to 60 ns
Pulse train period	10 ～ 99999 ms 1 ms step
Test duration	1 ～ 99999 s 1 s step
Direct capacitance	10 nF±20%
Output form	50 Ω BNC coaxial connector

CDN Coupling Capacitance	Common-Mode Coupling Capacitor： 33 nF
Residual Voltage at CDN Input	Below 10% of the set voltage value (with EUT line input and output open-circuited)
Couplable Path at CDN	L/N/PE/L&N/L&PE/N&PE/L&N&PE
Lightning surge test parameters	
Output voltage polarity	Positive / Negative / Automatic Positive-Negative Alternation
Output voltage	100 V ～ 6100 V±10% 10 V step
Output impedance	2 Ω,12 Ω,42 Ω±10%
Output current	50 A ～ 3050 A±10%
Source output voltage waveform	Rise Time： 1.2 μs±30% Half-Peak Time： 50 μs±20%
Source output current waveform	Rise Time： 8 μs±20% Half-Peak Time： 20 μs±20%
Source output overshoot	Below 30% of the peak voltage/current
Repetition time	10 ～ 9999 s(As the voltage increases, the minimum repetition time may become longer.)
Output voltage module function	The LCD displays the peak value with an accuracy of ±10%, and the fron t panel BNC interface can output a real-time waveform at 10 V for a 6 kV input.
Output current module function	The LCD displays the peak value with an accuracy of ±10%, and the fron t panel BNC interface can output a real-time waveform at 10 V for a 3 kA current.
CDN Coupling Parameters	Differential mode: 18 μF
CDN Couplable Path	L-N/N-L/L-PE/N-PE/L&N-PE
Residual Voltage at CDN Input	Not exceeding 15% of the surge voltage or 2 times the peak voltage of th e EUT power supply.
CDN Differential Mode Open-Circ uit Voltage / Short-Circuit Current	Voltage: 100 V to 6100 V ±10%
CDN Differential Mode Open-Cir cuit Voltage Waveform	Current: 50 A to 3050 A ±10%
CDN Differential Mode Short-Cir cuit Current Waveform	Rise time: 8μs ±20%

CDN Common Mode Open-Circuit Voltage / Short-Circuit Current	Half-peak time: 20μs ±20%
CDN Common Mode Open-Circuit Voltage Waveform	Voltage： 100 V ～ 6100 V±10%
CDN Common Mode Short-Circuit Current Waveform	Current： 8.33 A ～ 508 A
Voltage Drop at CDN Rated Condition	Rise time： 1.2 μs±30%
Angle Injection	Half-peak time： 25 μs ～ 60 us
Adapter for EUT Power Supply	Rise time： 2.5 μs±30%
AC Voltage Drop Test Parameters (Requires Additional MVR-16 Voltage Regulator)	
Test Voltage Range	AC： 264 V max
Test Frequency Range	50 Hz/60 Hz
EUT Current	AC： 16 A max
DIP RUSH Current	500 A/ max peak value
DIP Interruption Time	< 5 μs
DIPAC-LINESynchronization	0°~ 359° 1° step
DC Voltage Drop Test Parameters (Requires Additional DC Power Supply)	
Test Voltage Range	DC 370 V max
Test Frequency Range	DC
EUTCurrent	DC 16 A max
DIP RUSH Current	500 A/max peak value
DIP Interruption Time	1 ～ 50 μs
Test parameters for power frequency magnetic field measurement (requires additional magnetic field coil SC-1000)	
Current Waveform	50 Hz/60 Hz Sine Wave
Magnetic Field Intensity	1 A/m 3 A/m 10 A/m 30 A/m 100 A/m(Five-level Switching)
Magnetic Field Interval	1 ～ 999 s

Magnetic Field Duration	1 ～ 999 s
Test parameters for pulsed magnetic field measurement (requires additional magnetic field coils: SC-1000, PMF-801C-F, or SC-300)	
Magnetic Field Strength	100 A/m ～ 2000 A/m
Current Wave Rise Time	$8^{+2.4}_{-0.8}$μs(1 m*1 m coil)； $8^{+3.2}_{-0.8}$μs(1 m*2.6 m coil)
Current Wave Half-Width	20^{+6}_{-2} μs(1 m*1 m coil)； 20^{+8}_{-2} μs(1 m*2.6 m coil)
Pulse Polarity	Positive Pole / Negative Pole, Alternation of positive and negative
Pulse Output Count	1 ～ 9999 times
Pulse Interval Time	10 ～ 9999 s
General Parameters	
Operating Power Supply	AC 85 V ～ 264 V 50/60 Hz 120 W
CDN Capacity	single-phase AC 264 V max、 16 A max 50/60 Hz DC 370 V max、 16 A max
Display Interface	Color Touchscreen with Selectable Languages: Chinese, English, Japanese, and Korean
Host Computer Interface	Network LAN Interface with Firmware Upgrade and Host Computer Control Capabilities
Dimensions	19"/4 U
Weight	20 kg
Temperature	15℃~ 35℃ (Operating Conditions)
Humidity	30% ～ 60%(Operating Conditions)
Atmospheric Pressure	86 kPa ～ 106 kPa
Safety and Indication Functions	Emergency Stop Switch,Safety Lock,Overvoltage Protection for EUT (Equipment Under Test), Overtemperature Protection for Instrument,Overvoltage Protection for High-voltage Power Supply,Audible and Visual Alarm for Instrument Abnormality,Short Circuit and Overcurrent Protection for EUT.
Standard Accessories	Host Machine, Test Cable , Power Cable,FuseTest Report , Instruction Booklet
Optional Accessories	
External Coupling/Decoupling Network	CDN-5320M，CDN-5432H，CDN-4320H，CDN-5320H

Pulse Group Signal Line Coupling Clamp	EFTC
External Voltage Regulator	Single-phase Manual Voltage Regulator MVR-16
Surge Signal Line Test Network	CDN-508SUS，CDN-508S，CDN-508SUD
Pulse Magnetic Field Function	SC-1000，PMF-801C-F，SC-300
DC Source	Configured according to customer requirements

Type Selection

Name	Specification	IEC 61000-4-4	IEC 61000-4-5	IEC 61000-4-8	IEC 61000-4-9	IEC 61000-4-11	IEC 61000-4-29
Multifunctional Combined Generator	LCG-5411-BSIPDM	√	√	√	√	√	√
	LCG-5411-BSPDM	√	√	√		√	√
	LCG-5411-BSIPD	√	√		√	√	√
	LCG-5411-BSPD	√	√			√	√
	LCG-5411-BSI	√	√		√		
	LCG-5411-BS	√	√				
	LCG-5411-S		√				
	LCG-5411-SI		√		√		
	LCG-5411-B	√	√				