



Compact Combination Simulator

CCS 1000

- IEC/EN 61000-4-4
- IEC/EN 61000-4-5
- IEC/EN 61000-4-8
- IEC/EN 61000-4-9
- IEC/EN 61000-4-11
- IEC/EN 61000-4-12
- IEC/EN 61000-4-29
- IEC/EN 61008-1
- IEC/EN 61009-1
- EN 61543
- GB/T 17626.4
- GB/T 17626.5
- GB/T 17626.8
- GB/T 17626.9
- GB/T 17626.11
- GB/T 17626.12
- GB/T 17626.29
- ANSI/IEEE C62.41

Features

- > 5.7-inch color touch screen front panel operation
- > Max. 10.0 kV test voltage for surge
- > Surge voltage and current measurement and acquisition
- > Test sequence function
- > External CDN with higher ratings are available for request
- > Ethernet and RJ45 interfaces, used for PC remote control and printing test reports

Introduction

The CCS 1000 is an intelligent multi-functional conducted electromagnetic compatibility (EMC) test equipment designed to meet a wide range of IEC/EN standards, including IEC 61000-4-4, -4-5, -4-8, -4-9, -4-11, -4-29. Featuring a modular design, the CCS 1000 allows for future upgrades by adding new test modules. It supports test voltage up to 10 kV for surge wave.

Internal measurement can be used for real-time observation of output pulses' peak value during testing. The optional remote-control software Corelab connects to the compact combination simulator via an Ethernet interface, providing the users a user-friendly operation experience from a PC.

Application Areas



Technical Parameters

Technical Parameters for EFT / Burst as per IEC / EN 61000 - 4 - 4

Source Output Voltage	0.25 kV ~ 6.0 kV, $\pm 10\%$
CDN Output Voltage	0.25 kV ~ 5.5 kV, $\pm 10\%$
Source Impedance	50 Ω
Coupling Capacitor	33 nF
50 Ω Calibration Waveform	5 $\pm$ 1.5 ns, 50 ns $\pm$ 15 ns
1000 Ω Calibration Waveform	5 $\pm$ 1.5 ns, 50 ns (- 15 / + 100 ns)
Pulse Frequency	0.1 kHz ~ 1,000 kHz
Burst Period	11 ms ~ 10,100 ms
Burst Duration	0.001 ms ~ 1,000 ms
Trigger Mode	Auto, manual, external trigger
Test Time	1 s ~ 9,999 s
Polarity	Positive, negative, alternative

Technical Parameters for Surge as per IEC / EN 61000 - 4 - 5

Open - circuit Voltage	0.25 kV ~ 10.0 kV, $\pm 10\%$
Short - circuit Current	0.125 kA ~ 5 kA, $\pm 10\%$ @2 Ω
Output Impedance	2 Ω , 12 Ω
Open-circuit Voltage Wave	
Front Time	1.2 μ s $\pm 30\%$
Duration	50 μ s $\pm 20\%$
Short-circuit Current Wave	
Front Time	8 μ s $\pm 20\%$
Duration	20 μ s $\pm 20\%$
Repetition Rate	6 s ~ 180 s
Counter	1 ~ 999
Polarity	Positive, negative, alternative
Calibration capacitor	External 18 μ F capacitor
Trigger Mode	Auto, manual, external trigger
Peak Voltage Monitor	LCD display, BNC output, 1,000 V: 1 V
Peak Current Monitor	LCD display, BNC output, 500 A: 1 V

Technical Parameters

Technical Parameters for Power Frequency Magnetic Field as per IEC / EN 61000 - 4 - 8

Magnetic Field Strength	With 1-turn Coil (model: TCXS111) 1 m*1 m square magnetic field coil: 1 A/m ~ 100 A/m cont., 100 A/m ~ 400 A/m(1 ~ 10 s short term) With 3-turn Coil (model: TCXS113) 1 m*1 m square magnetic field coil: 1 A/m ~ 400 A/m cont., 400 A/m ~ 1,200 A/m(1 ~ 10 s short term)
Current Waveform	50 Hz/60 Hz Sinusoidal
Current Distortion Factor	<5%
Generator Output Current	1 A ~ 450 A
Repetition Rate	1 s ~ 9,999 s
Test Duration	1 s ~ 28,800 s
Trigger Mode	Auto, manual, external trigger
Magnetic Field Output Accuracy	< 1 dB of setting value

Note: To realize power frequency magnetic field test, the MFT module or VMT series is required as an accessory.

Technical Parameters for Impulse Magnetic Field as per IEC / EN 61000 - 4 - 9

Magnetic Field Strength	100 A/m ~ 1,200 A/m (1 m * 1 m coil) 100 A/m ~ 880 A/m (1 m * 2.6 m coil)
Coil Waveform	1 m * 1 m coil: 8μs (+2.4 μs ~ -0.8 μs), 20 μs (+6 μs ~ -2 μs) 1 m * 2.6 m coil: 8μs (+3.2 μs ~ -0.8 μs), 20 μs (+8 μs ~ -2 μs)
Polarity	Positive, negative, alternative
Repetition Rate	5 s ~ 99 s
Counter	1 ~ 999
Magnetic Field Coil	Rectangular shape

Technical Parameters

Technical Parameters for Power Fail as per IEC / EN 61000 - 4 -11 / - 4 - 29

EUT Rating	AC 300 V, 20 A / 32 A (optional), 50/60Hz DC 100 V ~300 V, 20 A / 32 A (optional)
Rise and fall time for dips and interruption	1 μ s ~ 5 μ s (100 Ω load): IEC 61000-4-11 1 μ s ~ 50 μ s (100 Ω load): IEC 61000-4-29
Duration Time for dips and interruption	0.3 ~9,999 cycle or 1 ms ~ 99,999 ms
Interval Time for dips and interruption	50 ms ~ 50,000 ms
Counter for dips and interruption	1 ~ 9,999
Withstand Inrush current	500 A
Test Level	0% ~ 100% (cover standard test level 0%, 40%, 70%, 80%)
Note: AC power fault test: VMT module or VVT needed DC power fault test: Two DC power supplies are needed. Choose according to EUT test demands	

General Parameters

Display Screen	5.7" TFT touch screen
Working Power	AC 100 V ~ 240 V, 50 Hz/ 60 Hz
Fuse	6 A
Maximum Power Consumption	500 W
External Control Mode	D-sub 25 pin
External Trigger Mode	BNC, 5 V TTL
CRO Trigger Mode	BNC, 5 V TTL
Operating Control Input	BNC, 5 V TTL
External Synchronization Input	45 Hz ~ 60 Hz, 20 V ~ 400 V
Warning Lamp Output	Multiple-core connector. Optional warning lamp module (model: CCS-Warning lamp)
Safety Circuit	Stop work when safety circuit is open
Failure Detection	LCD display in front panel and stop work when failure occurs
Working Status Indication	LED indication and LCD display in front panel
Grounding Method	Flat grounding wire
EUT Power Injection Mode	4 mm ² banana plug
Dimension	19"/6U rack, 620 mm*450 mm*280 mm

General Parameters

Weight	Approx. 32 kg
Ambient Temperature	15°C ~ 35°C
Relative Humidity	45% ~ 75%
Atmospheric Pressure	86 kPa ~ 106 kPa

Standard Accessories

Power Cord, User Manual, Test Cables, Flat Grounding Wire, Fuse, Coaxial Cable Kit, RF Cable

Optional Accessories

For EFT/Burst as per IEC / EN 61000 - 4 - 4			
1	EFT/Burst Calibration Kit	Model: EFT-CA-KIT (SHV) Including: Attenuator TFB 500(SHV): 50 Ω load, 500:1 Attenuator: TFB 1000(SHV): 1,000 Ω load, 1,000:1 HV-RF connector: SHV-BNC-JJ BNC to banana plug: BNC(K)-2BP(J)	
2	Capacitive Coupling Clamp	Model: CCC 100(SHV)	
3	Calibration Kit for Capacitive Coupling Clamp	Model: CA - CCC(SHV)	
4	CDN for EFT / Burst Immunity Test on Power Lines	Model: EFTN series or SEPN Series (for EUT with higher ratings) *Contact sales for further information	
5	Oscilloscope: 500 MHz	Recommended model: Tektronix MDO 3052	
For Surge as per IEC / EN 61000 - 4 - 5			
1	HV Differential Probe	Model: VCF 100 test voltage 10 kV, 1,000:1	
2	Wide-band Current Monitor	Model: CM 0220M 20 kA, 0.01 V / A	

Optional Accessories

For Surge as per IEC / EN 61000 - 4 - 5

3	CDN for Surge Test on Power Supply Lines	Model: SPN series or SEPN Series (for EUT with higher ratings) *Contact sales for further information	
4	Isolation Transformer	Model: select it according to EUT voltage and power	

For Power Frequency Magnetic Field as per IEC / EN 61000 - 4 - 8

1	1 - turn Coil	Model: TCXS 111 1 m * 1 m, square coil	
2	3 - turn Coil	Model: TCXS 113 1 m * 1 m, square coil	
3	External Auxiliary Equipment	Model: MFT series or VMT series	

For Impulse Magnetic Field as per IEC / EN 61000 - 4 - 9

1	1 - turn Coil	Model: TCXS 111 1 m * 1 m, square coil	
2	Wide-band Current Monitor	Model: CM 0220M 20 kA, 0.01 V / A	

For Power Fail as per IEC / EN 61000 - 4 - 29

1	2 sets of DC power sources Choose them according to EUT test requirement.		
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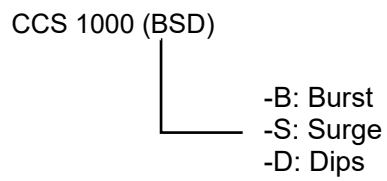
For Power Fail as per IEC / EN 61000 - 4 - 11

1	External Auxiliary Equipment	Model: VMT or VVT series	
2	Calibration Device of Peak Impulse Current	Model: PIC 1134	
3	Calibration Impedance	Model: R25 / 50 / 1000	
4	Adjustable Calibration Resistor Box	Model: R / 1 - 16 Ω / 1134	

Control Software

1	Model: Corelab Support Windows 7/8/10 /11, support Ethernet Interface Support Test Sequence Test, easy to operate, generate & export test report		
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Naming Rules



SUZHOU 3CTEST ELECTRONIC CO., LTD.

Address: No. 99 E'meishan Road, SND, Suzhou, Jiangsu Province, China

E-mail: globalsales@3ctest.cn

Service: service@3ctest.cn

Tel: +86 - 512 - 68077192

Web: www.3ctest.com



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