

# Combination Wave Lightning Surge Simulator

CWS 1500C & CWS 1500/V  
CWS 2000C & CWS 2000/V

## Datasheet



### In compliance with

- > IEC61000-4-5
- > GB/T17626.5
- > GB/T16927.1
- > ITU K.21
- > ITU K.44

### Introduction

The combination wave lightning and surge simulator CWS 1500 series and CWS 2000 series are developed and designed according to IEC 61000-4-5 and GB/T 17626.5, which can simulate the unipolar surge interference phenomenon caused by switching and lightning transients overvoltage and output 1.2/ 50  $\mu$ s & 8/20  $\mu$ s combination wave and 1.2/ 50  $\mu$ s voltage wave, the max. pulse voltage up to 20 kV, and max. current up to 10 kA.

This simulator can be equipped with SPN series coupling and decoupling network to inject lightning surge signal into the power line port of the tested equipment, and prevent the surge impact from affecting the circuits of other untested devices, equipment or systems.

The product is designed based on the third-generation platform, which is compact and easy to move. The interface is intuitive and the operation is simple.

### Features

- > 5.7 inches color touch screen on front panel;
- > 1.2/ 50  $\mu$ s & 8/20  $\mu$ s combination wave and 1.2/ 50  $\mu$ s voltage wave;
- > Automatic judgment of various faults, sound and light alarm;
- > Max. surge output voltage 20 kV, max. surge current 10 kA;
- > LAN communication interface for remote control;
- > Optional fully automatic coupling/decoupling network;
- > Built-in current and voltage dual peak acquisition, touch screen interface display output;

### Application

- |                 |                               |
|-----------------|-------------------------------|
| > Communication | > Technology                  |
| > Telecom       | > Military                    |
| > Media         | > Avionics                    |
| > Broadcast     | > New Energy Electrical Power |
| > Railway       | > New Energy Vehicles         |

Control Module--CWS 1500C/ CWS 2000C	
Display screen	5.7-inch TFT touch screen
Operating power supply	AC 110 V / 220 V ( $\pm 10\%$ ), 50/60 Hz(Default AC 220 V in Mainland China)
Fuse	6 A
Max. Power dissipation	50 W
Communication mode	Ethernet LAN
External control mode	25-pin parallel cable
Interval time	5 s-99 s(The shortest time depends on the test waveform, test voltage)
Number of tests	1~ 999
Failure detection	Front panel LCD display when failure occurs, and interrupt instrument working
Instrument working status indicator	LED on the front panel indicates and LCD displays
Instrument grounding connection	Use flat ground cables

1.2/50 $\mu$ s Combination Wave Module --CWS 1500/CWS 2000	
Open-circuit voltage	
Voltage peak	CWS 1500: 500 V ~ 15 kV ( $\pm 10\%$ ) CWS 2000:1000 V ~ 20 kV ( $\pm 10\%$ )
Rise time	1.2 $\mu$ s ( $\pm 30\%$ )
Duration	50 $\mu$ s ( $\pm 20\%$ )
Short-circuit current	
Current peak	CWS 1500: 250 A ~7.5 kA ( $\pm 10\%$ ) CWS 2000: 500 A ~10 kA ( $\pm 10\%$ )
Rise time	8 $\mu$ s ( $\pm 20\%$ )
Duration	20 $\mu$ s( $\pm 20\%$ )
Source output impedance	2 $\Omega \pm 0.25 \Omega$
Polarity	Positive/negative/alternating
Synchronization	0° ~ 360° (45 Hz ~ 65 Hz)
Trigger mode	Automatic, manual, external
Voltage peak detection	Front panel BNC output 2000V:1V; Real-time display of measured values
Current peak detection	Front panel BNC output 500A:1 V; Real-time display of measured values
Synchronization	0° ~ 360°(45 Hz ~ 65 Hz)
Trigger mode	Automatic, manual, external

1.2/50 $\mu$ s Combination wave and voltage wave module --CWS 1500V/CWS 2000V (optional)	
1.2/50 $\mu$ s combination wave	See the list at the bottom left of this page
1.2/50 $\mu$ s voltage wave	
Voltage peak	CWS 1500: 500 V ~ 15 kV ( $\pm 10\%$ ) CWS 2000:1000 V ~ 20 kV ( $\pm 10\%$ )
Rise time	1.2 $\mu$ s ( $\pm 30\%$ )
Duration	50 $\mu$ s( $\pm 20\%$ )
Source output impedance	500 $\Omega$
Polarity	Positive/negative/alternating
Repetition (single pulse time)	5 s ~ 99 s (The shortest time depends on the test voltage)
Voltage peak detection	Front panel BNC output 2000 V:1 V; Real-time display of measured values
Trigger mode	Automatic, manual, external

General parameters	
Temperature range	15 °C-35 °C
Humidity range	45%-75%
Pressure range	86 kPa-106 kPa
Grounded resistance	$\leq 0.5 \Omega$
Dimension	CWS 1500C/CWS 2000C: 4U CWS 1500/ CWS 2000: 8U CWS 1500V/ CWS 2000V: 8U
Weight	CWS 1500C/ CWS 2000C:18 kg CWS 1500/ CWS 2000: 54 kg CWS 1500V/ CWS 2000V: 54 kg

Accessories	
Three-core power cord, User manual, Test line, Earth line, Fuse, Coaxial cable	

Options	
Oscilloscope	MDO 3012
18 $\mu$ F capacitance	CCU 2000
Broadband Current Monitoring Clamp	CM 0220M
Voltage probe	Tektronix P 6015A
Controlling software	Corelab for remote control
Coupling/Decoupling Network	SPN Series



## **SUZHOU 3CTEST ELECTRONIC CO., LTD.**

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

Tel: +86 (0)512 6807 7192      Fax: +86-512-68079795

Sales Email: [globalsales@3ctest.cn](mailto:globalsales@3ctest.cn)      Service Email: [service@3ctest.cn](mailto:service@3ctest.cn)

[www.3c-test.com](http://www.3c-test.com)