



160 School House Road, Souderton, PA 18964-9990 USA
Phone 215-723-8181 FAX 215-723-5688

UCS 500M/6B

Ultra Compact Simulator for IEC and ANSI/IEEE Specifications



The UCS500M/6B ultra compact simulator tests to ANSI/IEEE C62.41, IEC 61000-4-4, -5, -8, -9, -11, -12 & -29 specifications for burst, surge, voltage dips, power frequency, magnetic fields, power fail simulation, and ringwave. Design of this simulator exceeds all current standard parameters and it has the capability to support future modifications. A built-in CDN accommodates EUT supply and includes output for external networks. Can be operated from the front panel or remotely, via standard windows-based software.

Burst Module, EFT/6 Electrical Fast Transient Simulator	
Test Level Output	
acc. to EN/IEC 61000-4-4 and EN 61000-6-1, -6-2	
Test voltage	200V - 5,500V \pm 10%
Wave shape	5/50ns \pm 30% into 50 Ω
	5ns \pm 30%, 50ns -15/+100ns into 1,000 Ω
Source impedance	Z _q = 50 Ω
Polarity	Positive/negative
Trigger Circuit	
Trigger of bursts	Automatic, manual, external
Synchronization	0° - 360°, resolution 1°
Burst duration	td = 0.1ms - 999.9ms
Burst repetition rate	tr = 10ms - 9,999ms
Spike frequency	f = 0.1kHz - 1,000kHz
Test duration	T = 0:01min - 99:59min or endless
Outputs	
Direct	Via 50 Ω -coaxial connector
Coupling mode	L, N, PE; all combinations
EUT supply	AC: 250V/16A; 16 - 500Hz DC: 250V/10A
CRO trigger	5V trigger signal for oscilloscope
Test Routines	
Quick Start	On-line adjustable parameters, easy to use
Standard Test Routines	acc. to EN/IEC 61000-4-4, level 1 - 4 acc. to EN 61000-6-1, -6-2 Manual Standard Test Routine
User Test Routines	Synchronous burst release Random burst release Change voltage after T by Δ T Frequency sweep within one single burst Frequency sweep with constant number of pulses Frequency sweep with constant burst duration Change polarity after T
Options	
HFK	Capacitive coupling clamp acc. to IEC 61000-4-4
KW50	100:1 divider, 50 Ω
KW1000	1000:1 divider; 1000 Ω
A6dB	6dB attenuator, 50 Ω
IIP	Immunity test probes (electrical field generation)
IIP/H	Immunity test probes (magnetic field generation)
CAEFT Cal Kit	Calibration adapter, KW50 and KW1000 for EFT pulse verification

Surge Module, VCS/6 Combination Wave Simulator	
Test Level Output	
acc. to EN/IEC 61000-4-5 and EN 61000-6-1; -6-2	
Voltage (open circuit)	250V - 6,600V \pm 10%
Pulse front time	1.2 μ s \pm 30%
Pulse time to half value	50 μ s \pm 20%
Current (short-circuit)	max. 3,300A \pm 10%
Pulse front time	8 μ s \pm 20%
Pulse time to half value	20 μ s \pm 20%
Polarity	Positive/negative/alternating
Event counter select	1 - 30,000 or endless
Pulse counter	1 - 1,000,000
Trigger Circuit	
Release of pulses	Automatic, manual, external
Synchronization	0° - 360°, resolution 1°
Pulse repetition rate	max. 0.5Hz (2s - 100s)
Outputs	
Direct	Via HV-coaxial connector, Z _i = 2 Ω
Coupling mode	Line to line with 2 Ω
IEC 61000-4-5	Line(s) to ground (PE) with 12 Ω
ANSI C62-41	Line(s) to ground (PE) and line to line with 2 Ω
UL	Line(s) to ground (PE) and line to line with 12 Ω
EUT supply	AC: 250V/16A; 50/60Hz DC: 250V/10A
CRO trigger	5V trigger signal for oscilloscope
Measurements	
CRO U-monitor	10Vp at 6,600V
CRO I-monitor	10Vp at 3,300A
Peak voltage	6,600V in the LCD display
Peak current	3,300A in the LCD display
Test Routines	
Quick Start	On-line adjustable parameters, easy to use
Standard Test Routines	Acc. to IEC 61000-4-5, level 1 - 4 Acc. to EN 61000-6-1, -6-2 Manual Standard Test Routine
User Test Routines	Change polarity after n pulses Change coupling after n pulses Change voltage after n pulses by Δ V Change phase angle after n pulses by Δ A
Pulsed Magnetic Field	Acc. to IEC 61000-4-9 Test levels 100, 300 and 1,000A/m Test level adjustable under in Quick Start
Options	
CNV504/8	Coupling networks for signal/data lines acc. to IEC 61000-4-5

Power Fail Module, PFS/6	
Power Fail Simulator, Dips & Interruptions, Voltage variations	
Voltage Dips & Interruptions and Variations	
acc. to EN/IEC 61000-4-11 and EN 61000-6-1, -6-2	
Channel PF1 and PF2	AC voltage: max. 250V
	AC current: max. 16A
Frequency	50 / 60Hz
	DC voltage: max. 250V
	DC current: max. 10A
Inrush current	> 500A
Electronic overload protection. Both channels are protected against short-circuit conditions.	

Trigger Circuit	
Trigger of events	Automatic, manual, external
Synchronization	0° - 360°, resolution 1° (16 - 500Hz)
Repetition rate	10ms - 99s
Event duration	100µs - 9,900ms

Outputs	
EUT terminals	L, N and PE
CRO trigger	5V trigger signal for oscilloscope

Measurements	
EUT voltage	In the LCD display
EUT current	In the LCD display
MON V	Measurement of the EUT voltage; built-in 100:1 divider
MON I	Measurement of the EUT current; 10mV/A; max. 1,000A

Test Routines	
Quick Start	On-line adjustable parameters, easy to use
Standard Test Routines	acc. to EN/IEC 61000-4-11, AC supplies
	acc. to EN/IEC 61000-4-29, DC supplies
	acc. to EN 61000-6-1, -6-2
	Manual Standard Test Routine
User Test Routines	Voltage variation, external variac control
	Change phase angle after n events by ΔA
	Change event duration after n events by ΔT
	Inverse mode
50/60Hz magnetic field	acc. to EN/IEC 61000-4-8
	Test levels 1, 3, 10 and 30A/m with external current transformer MC2630
	Test levels 100, 300 and 1,000A/m with external current transformer MC26100

Options	
V4070	Tapped autotransformer
V4070 S2	Tapped autotransformer with automatic change 40-70% tap
MV2616	Motorised variac (0 - 250V, 16A)
MS100	Magnetic field coil, 1m x 1m
MC2630	Current transformer for magnetic fields up to 30A/m
MC26100	Current transformer for magnetic fields up to 1,000A/m

Ringwave Module, RWG/6	
Ringwave Simulator	
Test Level Output	
acc. to ANSI/IEEE C62.41 and EN/IEC 61000-4-12	
Test voltage	250V - 6,000V \pm 10%
Voltage wave shape (open circuit)	
Rise time (first peak)	0.5µs \pm 30%
Oscillatory frequency	100kHz \pm 20%
Decaying	Peak 2 to peak 1 = 40 - 110%
	Peak 3 to peak 2 = 40 - 80%
	Peak 4 to peak 3 = 40 - 80%

Current wave shape (short circuit)	
Rise time	\leq 1.0µs
Oscillatory frequency	100kHz \pm 20%
Source impedances	12Ω, 30Ω and 200Ω
Short circuit peak current	acc. to selected source impedance
Polarity	Positive/negative

Trigger Circuit	
Release of pulses	Automatic, manual, external
Synchronization	0° - 360°, resolution 1°

Outputs	
Direct	Via HV-coaxial connector
Coupling mode	L, N, PE; line to line and line to ground
EUT supply	AC: 250V/16A; 50/60Hz
	DC: 250V/10A
CRO trigger	5V trigger signal for oscilloscope

Test routines	
Quick Start	On-line adjustable parameters, easy to use
Standard Test Routines	acc. to ANSI/IEEE C62.41
	acc. to IEC 61000-4-12
User Test Routines	Change voltage after n pulses by ΔV
	Change phase angle after n pulses by ΔA
	Change voltage after T by ΔT

General Data

Interfaces	
Serial interface	Serial RS232 interface with baud rate of 1,200 - 19,200 baud
Parallel interface	IEEE bus parallel interface, selectable device addresses 1 - 30
Analog output	Analogue control output with 0 - 10VDC to control an external transformer
CN interface	CNI interface with 15pin SubD to control an external coupling network
Fail inputs	EUT monitoring via Fail1 and Fail2 input (one each)

Dimensions

Housing	19", 6HU, L = 532mm
Weight	approx. 25kg

Mains

Supply voltage	115 / 230VAC +10% / -15%
Power consumption	approx. 75W
Frequency	50 / 60Hz
Fuses	2 x 1AT

Safety

Safety standard	EN/IEC 61010
Security circuit	Control input (24VDC)
Warning lamp	Floating contact (max. 230V/max. 6A)

Accessories Included

Power cord	plug depends on the country of use
EUT supply cable	plug depends on the country of use
EUT adapter	socket depends on the country of use
Instruction manual	
Calibration certificate	
ISMIEC software	Remote Control plus complete report software

Options

CNI503	3-phase coupling/decoupling network acc. to EN/IEC 61000-4-4 and -4-5
PÜW	EUT monitoring kit
ISMIEC1	Remote control and documentation software