

Specifications



UCS 500M/4

The ultra-compact simulator
and its system modules

UCS500M/4 - designed as a modular system - is the most intelligent solution offering exactly what you need for full-compliant immunity tests against transient and power fail phenomena. The distinct operation features, convenient DUT connection facilities, a clearly arranged menu structure and display philosophy as well as the pre-programmed standard test routines make testing easy, reliable and safe. Extendable by a variety of test accessories the UCS500M/4 is a universal equipment for abroad range of recommendations even for three-phase applications up to 100A.

- EN/IEC 61000-4-4
- EN/IEC 61000-4-5
- EN/IEC 61000-4-8
- EN/IEC 61000-4-11
- EN/IEC 61000-4-12
- EN/IEC 61000-4-29
- EN 61000-6-1
- EN 61000-6-2
- IEC 61000-4-9



Burst module, EFT/4

Electrical Fast Transient Simulator

Surge module, VCS/4

Combination Wave Simulator

Test Level Output

acc. to EN/IEC 61000-4-4 and EN 61000-6-1, -6-2

Test voltage	200V - 4,400V ± 10%
Wave shape	5/50ns ± 30% into 50Ω
	5ns ± 30%, 50ns -15/+100ns into 1,000Ω
Source impedance	Z _q = 50Ω
Polarity	Positive/negative

Trigger Circuit

Trigger of bursts	Automatic, manual, external
Synchronization	0° - 360°, resolution 1° (16 - 500Hz)
Burst duration	t _d = 0.1ms - 999.9ms
Burst repetition rate	t _r = 10ms - 9,999ms
Spike frequency	f = 0.1kHz - 1,000kHz
Test duration	T = 0:01min - 99:59min or endless

Outputs

Direct	Via 50Ω-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 ΔT
	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, 50Ω
KW1000	400:1 divider, 1000Ω
A6dB	6dB attenuator, 50Ω
ITP	Immunity test probes (electrical field generation)
ITP/H	Immunity test probes (magnetic field generation)

Test Level Output

acc. to EN/IEC 61000-4-5 and EN 61000-6-1; -6-2

Voltage (open circuit)	250V - 4,000V ± 10%
Pulse front time	1.2μs ± 30%
Pulse time to half value	50μs ± 20%
Current (short-circuit)	max. 2,000A ± 10%
Pulse front time	8μs ± 20%
Pulse time to half value	20μs ± 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 = 2Ω
Coupling mode	Line to line
	Line(s) to ground (PE)
EUT supply	AC: 250V/16A; 50/60Hz
	DC: 250V/10A
CRO trigger	5V trigger signal for oscilloscope

Measurements

CRO U-monitor	10Vp at 4,000V
CRO I-monitor	10Vp at 2,000A
Peak voltage	4,000V in the LCD display
Peak current	2,000A 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 ΔV
	Change phase angle after n pulses by ΔA
Pulsed Magnetic Field	acc. to IEC 61000-4-9
	Test levels 100, 300 and 1,000A/m
	Test level steplessly adjustable under Quick Start
Ring Wave	acc. to ANSI/IEEE C62.41
	acc. to IEC 61000-4-12

Options

CNV504/8	Coupling networks for signal/data lines acc. to IEC 61000-4-5
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Power Fail module, PFS/4

Power Fail Simulator, Dips & Interruptions, Voltage variations

Ringwave module, RWG500M4

External Ringwave Simulator Option

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	16 - 500Hz
	DC voltage: max. 250V DC current: max. 10A
Switching Off time	<5 μ s on a 100 Ω resistive load
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	100 μ s - 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

Test Level Output

acc. to ANSI/IEEE C62.41 and EN/IEC 61000-4-12

Test voltage	250V - 4,000V \pm 10%
Voltage wave shape (open circuit)	
Rise time (first peak)	0.5 μ s \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 1.0 μ s
Oscillatory frequency	100kHz \pm 20%
Source impedances	12 Ω \pm 25%, 30 Ω \pm 27% and 200 Ω
Short circuit peak current	acc. to selected source impedance
Polarity	Positive/negative
Coupling	L-N, L-PE, N-PE

Trigger Circuit

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

Outputs

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



EM TEST

EM TEST AG
Sternenhofstr. 15
CH-4153 Reinach
Switzerland

Tel: +41 (0)61 717 91 91
Fax: +41 (0)61 717 91 99
email: sales@emtest.ch
URL: <http://www.emtest.com>

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General data

Interfaces

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

Dimensions

Housing	19", 3HU, 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)
Peak current	2,000A in the LCD display

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 remote control software	

Options

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

Technical data is subject to change without notice.