

UCS 500N7

ULTRA COMPACT SIMULATOR FOR INDUSTRIAL ELECTRONICS



FOR TESTS ACCORDING TO ...

- › ANSI/IEEE C62.41
- › EN 61000-4-11
- › EN 61000-4-12
- › EN 61000-4-29
- › EN 61000-4-4
- › EN 61000-4-5
- › EN 61000-4-8
- › EN 61000-4-9
- › EN 61000-6-1
- › EN 61000-6-2
- › EN 61543
- › IEC 61000-4-11
- › IEC 61000-4-12
- › IEC 61000-4-29
- › IEC 61000-4-4
- › IEC 61000-4-5
- › IEC 61000-4-8
- › IEC 61000-4-9
- › IEC 61008-1
- › IEC 61009-1
- › IEC 61326
- › IEC 61850-3
- › ITU-T K.20
- › ITU-T K.21
- › ITU-T K.45

UCS 500N7 - MOST ENHANCED ULTRA COMPACT TESTER AS PER IEC 61000-4-X AND ANSI/IEEE C62.41

The UCS 500N7 ultra-compact simulator is the most versatile tester to cover transient and power fail requirements according to international standards (basic and generic standards) and product/ product family standards with voltage capability of up to 7.0kV. Apart from the IEC 61000-4-5 standard for surge testing it also complies to ANSI/IEEE C62.41 for surge and ringwave testing.

The UCS 500N7 not only represents the most economic solution for full-compliant immunity tests and CE Marking but goes far beyond. Having a built-in CDN for single phase DUTs it can be extended for testing three-phase DUTs by means of an automatically controlled external coupling network up to 100A.

EM TEST supplies a large range of accessories for the various applications.

HIGHLIGHTS

- › **ULTRA-COMPACT SIMULATOR UP TO 7.0KV**
- › **BURST MODULE (IEC/EN 61000-4-4)**
- › **SURGE MODULE (IEC/EN 61000-4-5)**
- › **POWERFAIL MODULE (IEC/EN 61000-4-11)**
- › **RINGWAVE MODULE (IEC/EN 61000-4-12) OPTIONAL**

APPLICATION AREAS

- | | |
|------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|
|  INDUSTRY |  BROADCAST |
|  COMPONENTS |  TELECOM |
|  MEDICAL |  RESIDENTIAL |

TECHNICAL DETAILS

ELECTRICAL FAST TRANSIENTS

BURST MODULE, EFT/N7

	As per EN/IEC 61000-4-4 and EN 61000-6-1, -6-2
Test voltage	200V - 5,500V \pm 10%; 100V - 2,750V \pm 10% into 50ohm
Pulse shape	5/50ns into 50ohm and 1,000ohm
Rise time tr	5ns \pm 30% into 50ohm; 5ns \pm 30% into 1,000ohm
Pulse width td	50ns \pm 30% into 50ohm; 50ns -15/+100ns into 1,000ohm
Source impedance	50ohm
Polarity	Positive, negative

TRIGGER CIRCUIT

Trigger of bursts	Automatic, manual, external
Synchronization	0° - 360°, resolution 1° (16 - 500Hz)
Burst duration	td = 0.10ms - 999ms
Repetition rate	tr = 10ms - 9,999ms
Spike frequency	f = 0.1kHz - 1,000kHz
Test duration	T = 0:01min - 99:59min T > 99:59min --> endless

OUTPUTS

Direct	Via 50ohm coaxial connector
Coupling mode	L, N, PE; all combinations
DUT supply	AC: 300V/16A; 50/60Hz DC: 300V/10A
CRO trigger	5V trigger signal for oscilloscope

TEST ROUTINES

Quick Start	On-line adjustable parameters, easy-to-use
Standard Test routines	As per IEC 61000-4-4, Levels 1 - 4 As per EN 61000-6-1, -6-2 Manual Standard Test routine
User Test routines	Synchronous burst release Random burst release Change voltage after T Frequency sweep within one burst Frequency sweep with constant number of pulses Frequency sweep with constant burst duration Change polarity after T

OPTIONS

HFK	Capacitive coupling clamp as per IEC 61000-4-4
KW50	100:1 divider, 50ohm
KW1000	500:1 divider, 1,000ohm
CA EFT kit	Kit for burst pulse verification consisting of KW50, KW1000 and adapter for DUT port in a plastic case for storage
A6dB	6dB attenuator, 50ohm
ITP	Immunity test probes (electrical field generation)
ITP/H	Immunity test probes (magnetic field generation)

TECHNICAL DETAILS

COMBINATION WAVE / SURGE

SURGE MODULE, VCS/N7

	As per EN/IEC 61000-4-5 and EN 61000-6-1, -6-2
Voltage (o.c.)	250V - 7,000V ± 10%
Pulse front time	1.2us ± 30%
Pulse time to half value	50us ± 20%
Current (s.c.)	Max. 3,500A ± 10%
Pulse front time	8us ± 20%
Pulse time to half value	20us ± 30%
Polarity	Positive, negative, alternating
Counter	1 - 30,000 or endless, selectable

TRIGGER CIRCUIT

Release of pulses	Automatic, manual, external
Synchronization	0° - 360°, resolution 1°
Repetition rate	Max. 0.5Hz (2s - 999s)

OUTPUTS

Direct	Via HV-safety lab connectors, Zi = 2ohm
Coupling modes	As per IEC 61000-4-5: Line to line with 2ohm Line(s) to ground with 12ohm
	As per ANSI/IEEE C62.41 Line to line with 2ohm Line(s) to ground with 2ohm
DUT supply	AC: 300V/16A; 50/60Hz DC: 300V/10A
CRO trigger	5V trigger signal for oscilloscope

MEASUREMENTS

CRO Ũ-monitor	10Vp at 7,000V
CRO Î-monitor	10Vp at 3,500A
Peak voltage	7,000V in the LCD display
Peak current	3,500A in the LCD display

TEST ROUTINES

Quick Start	One-line adjustable parameters, easy-to-use
Standard Test routines	As per IEC 61000-4-5, Levels 1 - 4 As per 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 Change phase angle after n pulses
Pulsed Magnetic Field	As per IEC 61000-4-9 Test levels 100, 300 and 1,000A/m Test level steplessly adjustable under Quick Start

OPTIONS

CNV504N	Coupling network for 4 signal/data lines as per IEC 61000-4-5
CNV508N	Coupling network for 8 signal/data lines as per IEC 61000-4-5

TECHNICAL DETAILS

POWER FAIL, DIPS & INTERRUPTIONS, VOLTAGE VARIATIONS

POWER FAIL MODULE, PFS/N7

	As per EN/IEC 61000-4-11 and EN 61000-6-1, -6-2
Channel PF1/PF2	AC voltage: max. 300V AC current: max. 16A
Frequency	16Hz - 500Hz
Switching time	< 5us into a 100ohm resistive load
Inrush current	> 500A
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 - 9,999s
Event duration	20us - 9,999s

OUTPUTS

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

MEASUREMENTS

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

TEST ROUTINES

Quick Start	On-line adjustable parameters, easy-to-use
Standard Test routines	As per IEC 61000-4-11 for AC supplies As per IEC 61000-4-29 for DC supplies As per EN 61000-6-1, -6-2 Manual Standard Test routine
User Test routines	Voltage variation, external variac control Change phase angle after n events Change event duration after n events Inverse mode
50/60Hz magnetic field	As per 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

V4780	Tapped autotransformer as per IEC 61000-4-11 Ed.2
V4780 S2	Tapped autotransformer as per IEC 61000-4-11 Ed.2 with automatic change of 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
CA PFS	Calibration box for inrush current verification as per IEC 61000-4-11

TECHNICAL DETAILS

RINGWAVE

RINGWAVE MODULE, RWG/N7	
	As per ANSI/IEEE C62.41 and EN/IEC 61000-4-12
Test voltage	250V - 6,000V ± 10%
Voltage	Wave shape (open circuit)
Rise time (first peak)	0.5us ± 30%
Oscillation frequency	100kHz ± 10%
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	≤ 1.0us
Oscillation frequency	100kHz ± 10%
Source impedance	12ohm and 30ohm
Peak current	As per selected source impedance
Polarity	Positive, negative

TRIGGER CIRCUIT	
Release of pulses	Automatic, manual, external
Synchronization	0° - 360°, resolution 1°
Repetition rate	max. 1Hz (1s - 999s)

OUTPUTS	
Direct	Via HV-safety lab connectors
Coupling mode	L, N, PE; line to line and line(s) to ground
DUT supply	AC: 300V/16A; 50/60Hz DC: 300V/10A
CRO trigger	5V trigger signal for oscilloscope

TEST ROUTINES	
Quick Start	On-line adjustable parameters, easy-to-use
Standard Test routine	As per ANSI/IEEE C62.41 As per IEC 61000-4-12

TELECOM SURGE

TSURGE MODULE, TSURGE6	
Test voltage (o.c.)	250V - 7,000V ± 10%
Energy storage capacitor	20uF
Polarity	Positive, negative, alternating
Counter	1 - 30,000 or endless, selectable
	As per ITU and ETSI recommendations
Front time	10us ± 30%
Pulse duration	700us ± 20%
	As per FCC part 68, Pulse B
Front time	9us ± 30%
Pulse duration	720us ± 20%
Output current	6A - 175A (short circuit)
Rise time	5us ± 30%
Pulse duration	320us ± 20%
	As per IEC 61000-4-5
Rise time	6.5us ± 30%
Pulse duration	700us ± 20%
Output current	6A - 175A (short circuit)
Rise time	4us ± 20%
Pulse duration	300us ± 20%

TRIGGER CIRCUIT	
Trigger of events	Automatic, manual, external
Repetition rate	max. 0.33Hz (3s - 999s)

OUTPUTS	
As per ITU	For 2-wire T1/T2 with 25ohm each, For 4-wire T1/T2/T3/T4 with 100ohm each
As per FCC part 68	For 2-wire T1/T2 with 25ohm each
As per IEC 61000-4-5	An external network is required (optional)

OPTIONS	
CNV 504S1	Coupling network for 4 telecom lines as per IEC 61000-4-5
CNV 508S1	Coupling network for 8 telecom lines as per IEC 61000-4-5

TECHNICAL DETAILS

GENERAL DATA

INTERFACES

Serial interface	USB
Parallel interface	IEEE 488, address 1 - 30
Analog output	0 - 10VDC to control an external transformer
CN interface	15pin SubD connector to control an external coupling network
Fail inputs	DUT monitoring via Fail1 and Fail2 input (one each)

DIMENSIONS

Housing	19", 6HU
Weight	Approx. 29kg

MAINS

Supply voltage	115 / 230VAC +10%/-15%
Power consumption	Approx. 75W
Frequency	50/60Hz
Fuses	2xT 2A (230V) or 2xT 4A (115V)

SAFETY

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

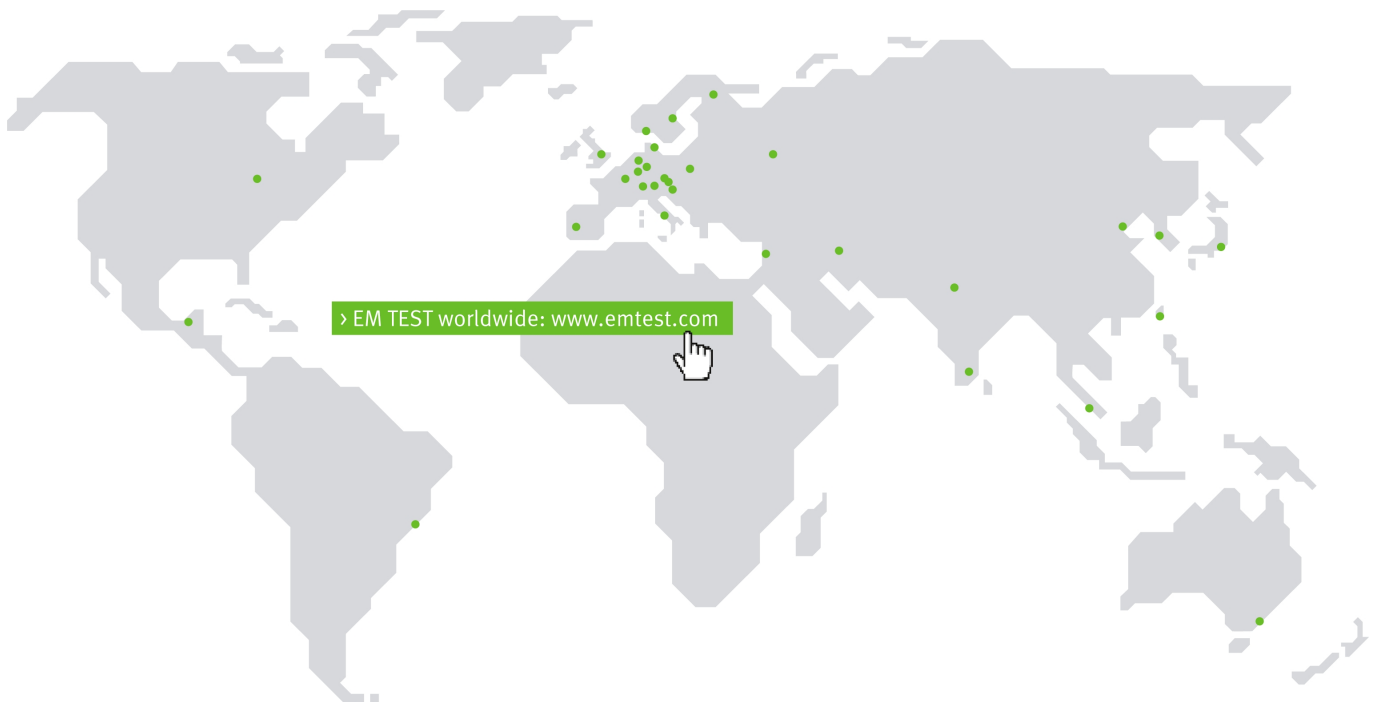
ACCESSORIES INCLUDED

Mains supply cable	Plug depends on the country of use
DUT supply cable	Plug depends on the country of use
DUT adapter	Socket depends on the country of use
	Operation manual, Calibration certificate, iec.control remote control software

OPTIONS

CNI 503Bx	3-phase coupling/decoupling networks as per IEC 61000-4-4 and -4-5 up to 100A per phase
iec.control 1	Remote control and documentation software, including standard test routines and reporting capabilities.

COMPETENCE WHEREVER YOU ARE



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Information about scope of delivery, visual design and technical data correspond with the state of development at time of release.
 Technical data subject to change without further notice.