

OCS 500N6F SERIES

SIMULATOR FOR FAST AND SLOW DAMPED OSCILLATORY WAVES AND RINGWAVE



FOR TESTS ACCORDING TO ...

- > ANSI/IEEE C37.90
- > ANSI/IEEE C62.41
- > EN 61000-4-10
- > EN 61000-4-12
- > EN 61000-4-18
- > IEC 60255-22-1
- > IEC 61000-4-10
- > IEC 61000-4-12
- > IEC 61000-4-18
- > IEC 61850-3
- > IEC 62052-11

OCS 500N6FX - COMPACT TESTERS FOR FAST/SLOW DAMPED OSCILLATORY WAVES AND RINGWAVE

The OCS 500N6F series includes the test capabilities for fast damped oscillatory waves at 3MHz/10MHz/30MHz up to 4.4kV and is extendable for slow damped oscillatory waves at 100kHz/1MHz up to 3.0kV (as per EN/IEC 61000-4-18) and for ringwave up to 6kV as per EN/IEC 61000-4-12.

Damped Oscillatory Waves are repetitive transients mainly occurring in power, control and signal cables installed in high voltage and medium voltage stations, divided into slow and fast damped oscillatory waves. The Ringwave is a non-repetitive damped oscillatory transient occurring in low-voltage power, control and signal lines supplied by public and non-public networks.

HIGHLIGHTS

- > Fully automated single box test system
- > Single DUT port
- > Fast Damped Oscillatory Waves up to 4.4kV
- > Slow Damped Oscillatory Waves up to 3kV (option)
- > Ringwave up to 6kV (option)

APPLICATION AREAS

- | | |
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|  INDUSTRY |  RESIDENTIAL |
|  COMPONENTS |  RENEWABLE ENERGY |
|  MEDICAL | |
|  BROADCAST | |

TECHNICAL DETAILS

MODEL SELECTION

THREE IN ONE - THE OCS 500N6F COMBINES DAMPED OSCILLATORY WAVES AND RINGWAVE

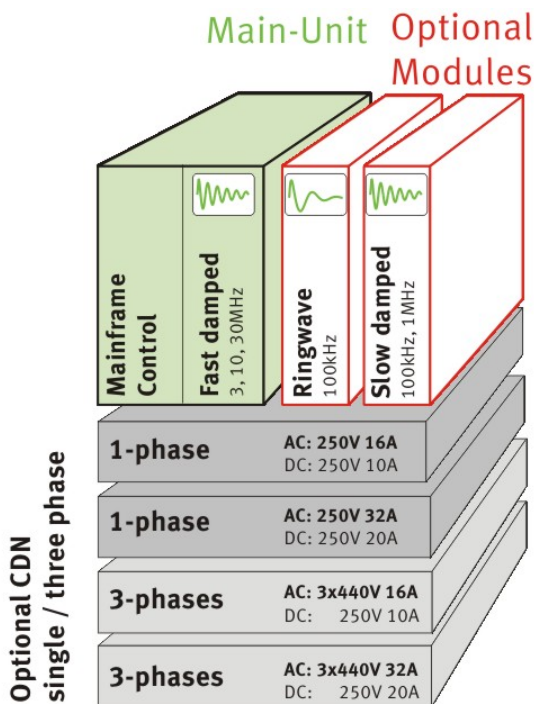
The basic equipment includes the fast damped oscillatory generator with 3MHz, 10MHz and 30MHz for up to 4.4kV acc. IEC 61000-4-18.

The OCS 500N6F comes with a built-in coupling/decoupling network for either single phase or three-phase and is rated for currents of 16A or 32A per line.

Optional Modules:

Slow Damped Oscillatory Waves with 100kHz/1MHz reach up to 3kV. The module comply with EN/IEC 61000-4-18 and also with the requirements to test protective relays as per ANSI/IEEE C39.70.

Ringwave Module with capability of up to 6kV complies with the Ringwave requirements of IEC 61000-4-12 ANSI/IEEE C62.41 standard.



OPERATION

EASY TO OPERATE

Front panel menu and function keys enable the user to program his test routines quickly and accurately. The cursor allows fast control of all test parameters of the programmed routine, thus test procedures are simplified and confidence is generated that every step is carried out correctly.

SOFTWARE

IEC.CONTROL SOFTWARE FOR CONTROL AND DOCUMENTATION

Outstanding user convenience, clearly structured windows and operation features and the EM TEST standards library along with the flexibility to generate user specific test sequences very easily are the main features of iec.control software. The software is automatically configured according to the connected EM TEST generators. Extensive reporting capabilities help the user to create test reports that meet international requirements.

iec.control is supported by Windows 2000, Windows XP, Windows Vista and Windows 7. Remote control is achieved either via USB or GPIB. iec.control supports a wide range of GPIB cards both of National Instruments.

AUXILIARY DEVICES

CNV 504N5 - COUPLING NETWORK FOR SIGNAL/DATA LINES

The CNV 504N5 is a 4-wire coupling/decoupling network for the application of the Damped Oscillatory Waves on to signal/data lines as required EN/IEC 61000-4-18 with a 200ohm source impedance.

ACCESSORIES

MS 100N - MAGNETIC FIELD COIL FOR DAMPED OSCILLATORY MAGNETIC FIELDS

The MS 100N is a 1sqm magnetic field coil as specified in IEC/EN 61000-4-10. Its design allows easy moving of the coil. The field coil is adjustable in height and allows for 360degr rotation.

The MS 100N is directly connected to the corresponding HV output of the OCS 500N6 to generate damped oscillatory magnetic fields as per IEC/EN 61000-4-10, up to level 5.

TECHNICAL DETAILS

OCS 500N6F MAIN-UNIT MODELS

OCS 500N6F	With built-in CDN AC 250V / 16A DC 250V / 10A
OCS 500N6F.1	With built-in CDN AC 250V / 32A DC 250V / 20A
OCS 500N6F.2	With built-in CDN AC 3x440V / 16A DC 250V / 10A
OCS 500N6F.3	With built-in CDN AC 3x440V / 32A DC 250V / 20A

FAST DAMPED OSCILLATORY MODULE

FAST DAMPED OSCILLATORY WAVES AS PER IEC/EN 61000-4-18

Voltage (o.c.) at HV output	450V - 4,400V ±10%
Rise time	5ns ±30%
Oscillation frequencies	3MHz, 10MHz and 30MHz, ±10%
Decaying	Peak 5 to be > 50% of peak 1 value Peak 10 to be < 50% of peak 1 value
Source impedance	50ohm ±20%
Polarity	Positive, negative
Repetition rate	Max. 5,000/s ±10%
Burst duration	50ms ±20%, at 3MHz 15ms ±20%, at 10MHz 5ms ±20%, at 30MHz
Burst period	300ms ±20%
Short-circuit current	9A - 88A ±20%
Rise time current waveform	< 330ns at 3MHz < 100ns at 10MHz < 33ns at 30MHz
Decaying (current)	Peak 5 to be > 25% of peak 1 value Peak 10 to be < 25% of peak 1 value

SLOW DAMPED OSCILLATORY MODULE (OPTION)

SLOW DAMPED OSCILLATORY WAVES AS PER IEC/EN 61000-4-18 (OPTION)

Voltage (o.c.) at HV output	250V - 3,000V ± 10%
Voltage (o.c.) at line output	250V - 2,500V ± 10%
Rise time	75ns ± 20%
Oscillation frequencies	100kHz and 1MHz ± 10%
Decaying	Peak 5 to be > 50% of peak 1 value Peak 10 to be < 50% of peak 1 value
Source impedance	200ohm ± 20%
Polarity	Positive, negative
Repetition rate	Max. 50/s for 100kHz and Max. 500/s for 1MHz
Burst duration	At least 2s

RINGWAVE MODULE (OPTION)

RINGWAVE AS PER IEC/EN 61000-4-12 AND ANSI/IEEE C62.41 (OPTION)

Voltage (o.c.)	250V - 6,000V ± 10%
Rise time	0.5us ± 30%
Oscillation frequency	100kHz ± 10%
Decaying	Ratio of peak 2 to peak 1: 0.4 - 1.1 Ratio of peak 3 to peak 2: 0.4 - 0.8 Ratio of peak 4 to peak 3: 0.4 - 0.8
Source impedance	12ohm and 30ohm ± 20% 200ohm for I/O lines (CNV 504N5)
Peak current (s.c.)	Max. 500A @ 12ohm or Max. 200A @ 30ohm internally; Max. 30A @ 200ohm, with CNV 504N5
Rise time	< 1us
Oscillation frequency	100kHz ± 10%
Polarity	Positive, negative
Repetition rate	1 to 60 transients per minute

TECHNICAL DETAILS

GENERAL SPECIFICATION

TRIGGER CIRCUIT

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

OUTPUT

Direct	Via HV-safety lab connectors
Coupling mode	Line to line Line(s) to ground (PE)
DUT supply	
OCS 500N6F	AC: 250V/16A; 50/60Hz DC: 250V/10A
OCS 500N6F.1	AC: 250V/32A; 50/60Hz DC: 250V/20A
OCS 500N6F.2	AC: 3x440V/16A; 50/60Hz DC: 250V/10A
OCS 500N6F.3	AC: 3x440V/32A; 50/60Hz DC: 250V/20A
CRO trigger	5V trigger signal for oscilloscope

MEASUREMENTS

Ring wave	Peak voltage and peak current in LCD
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TEST ROUTINES

Quick Start	Immediate start; easy-to-use and fast
Standard Test routines	As per IEC 61000-4-18 As per IEC 61000-4-12, Level 1 - 4 Manual Standard Test routine As per ANSI/IEEE C62.41 As per IEC 61000-4-10, Level 1 - 5
User Test routines	Change polarity after n pulses Change coupling after n pulses Change voltage after n pulses Change phase angle after n pulses

GENERAL DATA

INTERFACE

Optical interface	Opto link, 3 m cable USB A connector
Parallel interface	IEEE 488, addresses 1 - 30

GENERAL DATA

Dimensions, weight	19"/9HU, approx. 32kg (1-phase) 19"/9HU, approx. 50kg (3-phase)
Supply voltage	115/230V +10/-15%
Fuses	2 x T2AT (230V); 2 x T4AT (115V)

OPTIONS

ACCESSORIES COUPLING NETWORK

CNV 504N5.1	Coupler for 4 signal/datalines for damped oscillatory waves 100kHz and 1MHz as per IEC 61000-4-18, 50V/4A
CNV 504N5.3	Coupler for 4 signal/datalines for damped oscillatory waves 100kHz and 1MHz as per IEC 61000-4-18, 250V/4A
CNV 508N4	Coupler for 4 pairs (8 wires) as per IEC 60255-22-1, 250V/4A
CNV 508N4.1	Coupler for 4 pairs (8 wires) as per IEC 60255-22-1, 250V/16A
HFK	Capacitive coupling clamp as per IEC 61000-4-4
MS 100N	Magnetic Field coil for EN/IEC 61000-4-10 application

ACCESSORIES SOFTWARE, VERIFICATION

iec.control	Remote control and documentation software with library of standards
CA OCS F Kit	Load resistor set for fast damped oscillatory wave verification, KW OR1 load resistor 0.1ohm, KW 1000 load resistor 1000ohm, CA MC F Adapter to match KW OR1 and KW 1000 to the supply output of the OCS 500N6F

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.