

# CWS 500N4

SIMULATOR FOR CONDUCTED, COMMON-MODE DISTURBANCES, AS PER IEC 61000-4-16, IEC 61000-4-19 ANNEX C, 0HZ (DC) TO 165KHZ



#### FOR TESTS ACCORDING TO ...

- > EN 61000-4-16
- > IEC 60255-22-7
- > IEC 60533
- > IEC 61000-4-16
- > IEC 61000-4-19, Annex C
- > IEC 61326
- > IEC 61543
- > IEC 61850-3
- > prTR 50579

#### CWS 500N4 - TESTING FOR IMMUNITY TO CONDUCTED, COMMON-MODE DISTURBANCES

The CWS 500N4 is the state-of-the-art solution in a compact single-box design to test for immunity to conducted, common mode disturbances in the frequency range 0Hz (DC) to 165kHz. Such test requirements are specified in IEC 61000-4-16 and cover continuous mode testing as well as short term testing with DC, 16 2/3Hz, 50Hz and 60Hz with 4 test levels each plus a sweep mode from 10Hz to 165kHz.

Additionally, the CWS 500N4 can be used for testing electricity metering equipment as per prTR 50579 and Draft standard IEC 61000-4-19, Annex C.

#### HIGHLIGHTS

- > **Most compact equipment for common-mode disturbances as per IEC 61000-4-16**
- > **Built-in LF signal generator and LF amplifier**
- > **Sweep mode capability 10Hz to 165kHz**
- > **Built-in rectifier module for DC testing**
- > **Option for Electricity Meter testing acc IEC 61000-4-19 Annex C**

#### APPLICATION AREAS

-  INDUSTRY
-  RESIDENTIAL

**TECHNICAL DETAILS**

**TESTING AS PER IEC/EN 61000-4-16**

OUTPUT CHARACTERISTICS CONTINUOUS MODE	
Test frequencies	DC, 16 2/3Hz, 50Hz and 60Hz
Signal level	0.1 - 35Vrms or DC
Test level 1	1V continuous
Test level 2	3V continuous
Test level 3	10V continuous
Test level 4	30V continuous
Output impedance	50ohm ± 10%
Total harmonics distortion	< 10% (sinusoidal waveform)
Ripple on DC	< 5%

OUTPUT CHARACTERISTICS SHORT-TERM MODE	
Test frequencies	DC, 16 2/3Hz, 50Hz and 60Hz
Signal level	1 - 330Vrms or DC
Test level 1	10V for 1s duration
Test level 2	30V for 1s duration
Test level 3	100V for 1s duration
Test level 4	300V for 1s duration
Output impedance	50ohm ± 10%
Total harmonics distortion	< 10% (sinusoidal waveform)
Phase synchronisation	0° ± 5%
Ripple on DC	< 5%
Fall/rise time	between 1us and 5us
Note:	These tests require either the optional MV 2606N2.2 motor variac or the optional programmable AC voltage source ACS 500N2.3.

**TESTING AS PER IEC/EN 61000-4-16**

OUTPUT CHARACTERISTICS 15HZ - 165KHZ	
Frequency range	10Hz to 165kHz
Signal level	0.1 to 35Vrms
Test level 1	1V - 0.1V - 1V
Test level 2	3V - 0.3V - 3V
Test level 3	10V - 1V - 10V
Test level 4	30V - 3V - 30V
Output impedance	50ohm ± 10%
Total harmonics distortion	< 1% (sinusoidal waveform)

MEASUREMENT	
Voltage	internal rms measurement

TEST ROUTINES	
Quick Start	Immediate start; easy to use and fast discrete frequency testing
Service	Service, Set-up

**TESTING OF ELECTRICITY METERING EQUIPMENT AS PER TR-EN 50579**

INTERFERENCES DISTURBANCES TESTING AS PER TR-EN 50579 AND IEC 61000-4-19 ANNEX C (OPTION)	
Test frequencies	2kHz to 150kHz
Signal level	Max. 3A up to 150kHz
Total harmonic distortion (THD)	<5% at maximum level
Accuracy	better than ± 5%
Frequency step	Max. 1%
Output impedance	1.0ohm (external decoupling impedance SH 1R)

## TECHNICAL DETAILS

## GENERAL DATA

INTERFACE	
Serial interface	USB
Parallel interface	IEEE 488, addresses 1 - 30
Fail 1	BNC input; test will be stopped immediately (when input becomes active low)
Fail 2	BNC input; test will be stopped (when input becomes active low) and continued (input active high). After 10 fail events the test will be stopped.

GENERAL DATA	
Dimensions	19"/6HU, 555mm x 448mm x 286mm
Weight	Approx. 30kg
Supply voltage	115V - 230V +10/-15%, 50/60Hz
Input power	Max. 600W
Fuses	2x6.3AT (115V) or 2x3.15AT (230V) 2x10AT for AC-source
Cooling	Active cooling, air ventilation
Temperature	10°C - 40°C

## OPTIONS

ACCESSORIES COUPLING NETWORK	
CN 16-L2/L4	2-wire/4-wire coupling network, switchable, EUT Umax. AC: 440V 16.7Hz..60Hz EUT Umax. DC: 125V GEN IN Umax.: 330V AC/DC Power dissipation: max. 40W
CN 16-L2.1	2-wire coupling network, EUT Umax. AC: 300V 16.7Hz..60Hz EUT Umax. DC: 220V GEN IN Umax.: 330V AC/DC, Power dissipation: max. 200W, active cooling, overtemperature protection, Mains: 85-265V AC 50/60Hz, Fuse 1AT
CN 16-L3	3-wire coupling network, EUT Umax. AC: 440V 16.7Hz..60Hz EUT Umax. DC: 125V GEN IN Umax.: 330V AC/DC Power dissipation: max. 40W
CN 16-L4/690V	4-wire coupling network, EUT Umax. AC: 3x690V 50/60Hz EUT Umax. DC: 125V GEN IN Umax.: 330V AC/DC Power dissipation: max. 40W
CDN 16-L4/400V	4-wire coupling network, decoupling with isolation transformer EUT Umax./ Imax.: 3x400V 16A GEN IN Umax.: 330V AC/DC
CN 16-L8	8-wire coupling network, EUT Umax. AC: 300V 16.7Hz..60Hz EUT Umax. DC: 160V GEN IN Umax.: 330V AC/DC, Power dissipation: max. 40W
CDN 16-T2	Telecom T-network, 60 VDC, 2A EUT Umax.: 60V DC EUT Frequency range: Telecom applications GEN IN Umax.: 330V AC/DC
CN 60255-22-7	4-wire coupling network as per IEC 60255-22-7, figs. 2, 3 and 4, common mode and differential mode coupling
CN 61543	Coupling network as per IEC 61543 (100ohm)

## TECHNICAL DETAILS

## OPTIONS

### ACCESSORIES AC SOURCES, SOFTWARE

ACS 500N2.3	AC power source 0 - 330VAC/2kVA, 10Hz - 80Hz, galvanically isolated; controlled by CWS 500N4 via serial interface Mains supply: 230V/16A, 50/60Hz
MV 2606N2.2	Motor variac 0 - 330VAC/2kVA, 50Hz/60Hz, galvanically isolated; controlled by CWS 500N4 via 0-10V analog output Mains supply: 230V/9A, 50/60Hz
icd.control	Extensive and most versatile remote control and reporting software. A standard library helps to configure the test setup.

### EXTENSION FOR APPLICATION AS PER IEC 61000-4-19

ELM set	Electricity meter test set as per IEC 61000-4-19 Annex C included: -SH 1R Shunt resistor box, decoupling impedance, -Current meter ext., 5 1/2 digit, 150kHz, USB remote control with icd.control software, -USB remote cable -Cable set SH 1R to current meter
ELM-R set	Electricity meter test set as per IEC 61000-4-19 Annex C included: -CWS500N4 hardware upgrade -SH 1R Shunt resistor box, decoupling impedance, -Current meter ext., 5 1/2 digit, 150kHz, USB remote control with icd.control software, -USB remote cable -Cable set SH 1R to current meter -Call representative for details

# 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.