

# COUPLING NX5 SERIES

## COMBINED 3-PHASE COUPLING/DECOUPLING NETWORKS FOR BURST AND SURGE TESTING UP TO 5.5 KV



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### FOR TESTS ACCORDING TO ...

- › EN 50121
- › EN 50121-3-2
- › EN 50121-4
- › EN 50121-5
- › EN 61000-4-4
- › EN 61000-4-5
- › EN 61000-6-1
- › EN 61000-6-2
- › EN 61543
- › IEC 60601-1-2
- › IEC 61000-4-12
- › IEC 61000-4-4
- › IEC 61000-4-5
- › IEC 61008-1
- › IEC 61009-1
- › IEC 61326
- › IEC 61850-3
- › ITU-T K.20
- › ITU-T K.21
- › ITU-T K.45

### COUPLING/DECOUPLING NETWORKS FOR EFT/BURST AND SURGE







The three-phase coupling/decoupling networks of the coupling NX series are used to couple EFT/Burst pulses and Surge pulses on DC-lines or to three-phase (4-wire or 5-wire) mains supply systems for voltages up to 1,000 VDC / 3 x 690 VAC. This includes the more and more common testing of inverters used in the area of renewable energies (e.g. photovoltaic systems, wind power stations, electric cars).

Full compliance over a wide range of EUT current, within 16A , 32 A, 63 A, 125 A and 200 A settings. Higher current ratings on request.

### HIGHLIGHTS

- › Automatic coupler for Burst and Surge
- › Model with range selection 32, 63, 125 and 200 A
- › Meet requirements for 3x690 VAC and 1,000 VDC
- › LEDs indicate active mode and coupling
- › Automatic selection of Surge impedance
- › Fully remote controlled by EM TEST compact NX
- › Option for railway application as per EN 50121

### APPLICATION AREAS

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

## TECHNICAL DETAILS

### BENEFITS

The coupling NX-series coupling/decoupling networks are built fully compliant to the standard requirements of EN/IEC 61000-4-4 and EN/IEC 61000-4-5. Residual voltage levels are carefully considered as well as the value of the decoupling inductors in order to meet the requirements with regard to voltage drop at the rated current of each type of CDN.

Being fully controlled by the related generators, couplings of the coupling NX are set automatically as selected for the test (either by manual operation or via software). When performing surge tests the generators will automatically set the required source impedance depending on the standard and the coupling mode.

Models are available with multiple current ranges with waveshape specification that are fully compliant to IEC 61000-4-5. in each selectable EUT current range. Offering the advantage that nearly all EUT's can be tested with just one CDN!



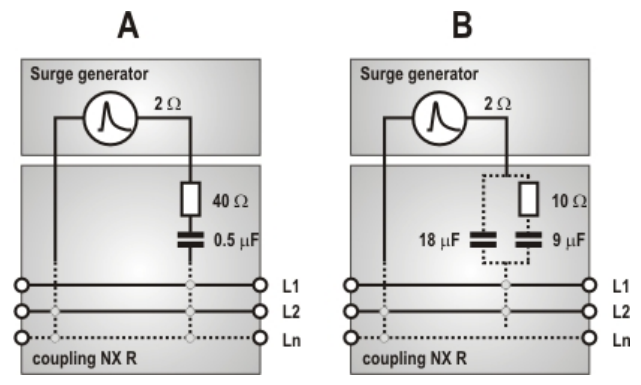
### COUPLER FOR RAILWAY APPLICATION

For surge testing according the railway standard EN 50121 an additional coupling RC impedance of  $0.5 \mu\text{F}$  and  $40 \text{ ohm}$  is required.

This special impedance network is already implemented in the 3-phase couplers for railway application. This railway coupling is automatic offeed in the menu of the NX generators and the iec.control software.

Figure A shows the coupling with the special railway coupling impedance module of  $0.5 \mu\text{F} / 40 \text{ ohm}$ .

Figure B shows the standard surge coupling with  $18 \mu\text{F}$  for line to line coupling and the coupling impedance for line to ground coupling using  $9 \mu\text{F} / 10 \text{ ohm}$ .



## TECHNICAL DETAILS

## MODEL OVERVIEW

## GENERAL INFORMATION FOR ALL CDN

Burst	EN/IEC 61000-4-4, up to 5.5 kV
Surge	EN/IEC 61000-4-5, up to 5 kV
*Current range	<32 A: 0 A to 32 A 63 A: >32 A to 63 A 125 A: >63 A to 125 A 200 A: >125 A to 200 A

## MODELS FOR 3 X 480 VAC (P-P)

Current range	Model
16 A	coupling NX5 bs-3-480-16
32 A	coupling NX5 bs-3-480-32
63 A	coupling NX5 bs-3-480-63
125 A	coupling NX5 bs-3-480-125
	with additional current ranges*
<32, 63 A	coupling NX5 bs-3-480-63.1
<32, 63, 125 A	coupling NX5 bs-3-480-125.1
<32, 63, 125 and 200 A	coupling NX5 bs-3-480-200.1

## MODELS FOR 3 X 690 VAC (P-P)

Current range	Model
16 A	coupling NX5 bs-3-690-16
32 A	coupling NX5 bs-3-690-32
	with additional current ranges*
<32, 63 A	coupling NX5 bs-3-690-63.1
<32, 63, 125 A	coupling NX5 bs-3-690-125.1
<32, 63, 125 and 200 A	coupling NX5 bs-3-690-200.1

## MODELS FOR 3 X 690 VAC (P-P); 1,000 VDC

Current range	Model
16 A	coupling NX5 bs-3-690-16.2
32 A	coupling NX5 bs-3-690-32.2
	with additional current ranges*
<32, 63 A	coupling NX5 bs-3-690-63.3
<32, 63, 125 A	coupling NX5 bs-3-690-125.3
<32, 63, 125 and 200 A	coupling NX5 bs-3-690-200.3

## MODELS FOR RAILWAY APPLICATION

## GENERAL INFORMATION FOR ALL RAILWAY CDN

Coupling	built in module with 0.5 $\mu$ F / 40 Ohm for railway applications according EN 50121;
Burst	EN/IEC 61000-4-4, up to 5.5 kV
Surge	EN/IEC 61000-4-5, up to 5 kV
*Current ranges	<32 A: 0 A to 32 A 63 A: >32 A to 63 A 125 A: >63 A to 125 A 200 A: >125 A to 200 A

## MODELS FOR 3 X 480 VAC (P-P)

Current range	Model
16 A	coupling NX5-R bs-3-480-16
32 A	coupling NX5-R bs-3-480-32
	with additional current ranges*
<32, 63 A	coupling NX5-R bs-3-480-63.1
<32, 63, 125 A	coupling NX5-R bs-3-480-125.1
<32, 63, 125 and 200 A	coupling NX5-R bs-3-480-200.1

## MODELS FOR 3 X 690 VAC (P-P)

Current range	Models with additional current ranges*
<32, 63 A	coupling NX5-R bs-3-690-63.1
<32, 63, 125 A	coupling NX5-R bs-3-690-125.1
<32, 63, 125 and 200 A	coupling NX5-R bs-3-690-200.1

## MODELS FOR 3 X 690 VAC (P-P); 1,000 VDC

Current range	Models with additional current ranges*
<32, 63 A	coupling NX5-R bs-3-690-63.3
<32, 63, 125 A	coupling NX5-R bs-3-690-125.3
<32, 63, 125 and 200 A	coupling NX5-R bs-3-690-200.3

## RAILWAY COUPLER FOR MANUAL APPLICATION

PCN 7-R s-1	Manual Coupling network, 7 kV surge pulse, EUT max. 690 VAC Coupling: 0.5 $\mu$ F / 40 Ohm, Decoupling: Generator internal CDN
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## TECHNICAL DETAILS

## TECHNICAL DETAILS (480 V MODELS)

## COUPLING NX5 BS-3-480-16

Three-phase CDN	according to EN/IEC 61000-4-4 and EN/IEC 61000-4-5 for Burst up to 5.5 kV Surge up to 5 kV
EUT supply	3 x 480 V, 16 A, 50/60 Hz
Connectors	IN : MC Safety plug 4 mm, OUT: MC Safety plug 4 mm
Dimensions	Size: 19" / 6 HU, 448 x 286 x 500 mm, Weight: approx. 30 kg

## COUPLING NX5 BS-3-480-32

Three-phase CDN	according to EN/IEC 61000-4-4 and EN/IEC 61000-4-5 for Burst up to 5.5 kV Surge up to 5 kV
EUT supply	3 x 480 V, 32 A, 50/60 Hz
Connectors	IN : MC Safety plug 4 mm, OUT: MC Safety plug 4 mm
Dimensions	Size: 19" / 6 HU, 448 x 286 x 500 mm, Weight: approx. 45 kg

## COUPLING NX5 BS-3-480-63

Three-phase CDN	according to EN/IEC 61000-4-4 and EN/IEC 61000-4-5 for Burst up to 5.5 kV Surge up to 5 kV
EUT supply	3 x 480 V, 63 A, 50/60 Hz
Connectors	IN : CEE 480/63, OUT: MC Safety plug 6 mm
Dimensions	Size: RAC 25 IEC included, Weight: approx. 100 kg

## COUPLING NX5 BS-3-480-125

Three-phase CDN	according to EN/IEC 61000-4-4 and EN/IEC 61000-4-5 for Burst up to 5.5 kV Surge up to 5 kV
EUT supply	3 x 480 V, 125 A, 50/60 Hz
Connectors	IN : CEE 480/125, OUT: MC Safety plug 6 mm
Dimensions	Size: RAC 25 IEC included, Weight: approx. 200 kg

## TECHNICAL DETAILS (480 V MODELS WITH ADDITIONAL RANGES)

## COUPLING NX5 BS-3-480-63.1

Three-phase CDN	according to EN/IEC 61000-4-4 and EN/IEC 61000-4-5 for Burst up to 5.5 kV Surge up to 5 kV
EUT supply	3 x 480 V, 63 A, 50/60 Hz
Current ranges*	<32 A, 63 A
Connectors	IN : CEE 480/63, OUT: MC Safety plug 6 mm
Dimensions	Size: RAC 34 IEC included, Weight: approx. 100 kg

## COUPLING NX5 BS-3-480-125.1

Three-phase CDN	according to EN/IEC 61000-4-4 and EN/IEC 61000-4-5 for Burst up to 5.5 kV Surge up to 5 kV
EUT supply	3 x 480 V, 125 A, 50/60 Hz
Current ranges*	<32 A, 63 A, 125 A
Connectors	IN : CEE 480/125, OUT: MC Safety plug 6 mm
Dimensions	Size: RAC 34 IEC included, Weight: approx. 180 kg

## COUPLING NX5 BS-3-480-200.1

Three-phase CDN	according to EN/IEC 61000-4-4 and EN/IEC 61000-4-5 for Burst up to 5.5 kV Surge up to 5 kV
EUT supply	3 x 480 V, 200 A, 50/60 Hz
Current ranges*	<32 A, 63 A, 125 A, 200 A
Connectors	IN : MC Safety plug 10 mm, OUT: MC Safety plug 10 mm
Dimensions	Size: RAC 34 IEC included, Weight: approx. 200 kg

## TECHNICAL DETAILS

## GENERATORS FOR 690 V CDN'S

## GENERATOR REQUIREMENTS FOR 690 V MODEL CDN'S

AC voltage requirements	Coupling/decoupling networks for 3 x 690 VAC require a transient generator rated for 400 VAC voltage.
compact NX series	Suitable generators for 3 x 690 VAC CDN's: - compact NX5 bsp-1-400-16, - compact NX5 bsp-1-400-32, - compact NX5 bspt-1-400-32

## TECHNICAL DETAILS (690 V MODELS)

## COUPLING NX5 BS-3-690-16

Three-phase CDN	according to EN/IEC 61000-4-4 and EN/IEC 61000-4-5 for Burst up to 5.5 kV Surge up to 5 kV
EUT supply	3 x 690 V, 16 A AC
Connectors	IN : MC Safety plug 4 mm, OUT: MC Safety plug 4 mm
Dimensions	Size: 19" / 6 HU Weight: approx. 30 kg

## COUPLING NX5 BS-3-690-32

Three-phase CDN	according to EN/IEC 61000-4-4 and EN/IEC 61000-4-5 for Burst up to 5.5 kV Surge up to 5 kV
EUT supply	3 x 690 V, 32 A, 50/60 Hz
Connectors	IN : MC Safety plug 4 mm, OUT: MC Safety plug 4 mm
Dimensions	Size: 19" / 6 HU Weight: approx. 30 kg

## TECHNICAL DETAILS (690 V MODELS WITH ADDITIONAL RANGES)

## COUPLING NX5 BS-3-690-63.1

Three-phase CDN	according to EN/IEC 61000-4-4 and EN/IEC 61000-4-5 for Burst up to 5.5 kV Surge up to 5 kV
EUT supply	3 x 690 V, 63 A, 50/60 Hz
Current ranges*	<32 A, 63 A
Connectors	N : CEE 690/63, OUT: MC Safety plug 6 mm
Dimensions	Size: RAC 34 IEC included, Weight: approx. 120 kg

## COUPLING NX5 BS-3-690-125.1

Three-phase CDN	according to EN/IEC 61000-4-4 and EN/IEC 61000-4-5 for Burst up to 5.5 kV Surge up to 5 kV
EUT supply	3 x 690 V, 125 A, 50/60 Hz
Current ranges*	<32 A, 63 A, 125 A
Connectors	N : CEE 690/125, OUT: MC Safety plug 6 mm
Dimensions	Size: RAC 34 IEC included, Weight: approx. 190 kg

## COUPLING NX5 BS-3-690-200.1

Three-phase CDN	according to EN/IEC 61000-4-4 and EN/IEC 61000-4-5 for Burst up to 5.5 kV Surge up to 5 kV
EUT supply	3 x 690 V, 200 A, 50/60 Hz
Current ranges*	<32 A, 63 A, 125 A, 200 A
Connectors	IN : MC Safety plug 10 mm, OUT: MC Safety plug 10 mm
Dimensions	Size: RAC 34 IEC included, Weight: approx. 220 kg

## TECHNICAL DETAILS

## TECHNICAL DETAILS (690 VAC AND 1,000 VDC MODELS)

## COUPLING NX5 BS-3-690-16.2

Three-phase CDN	according to EN/IEC 61000-4-4 and EN/IEC 61000-4-5 for Burst up to 5.5 kV Surge up to 5 kV
EUT supply	3 x 690 V, 16 A, 50/60 Hz, 1,000 VDC, 16 A
Connectors	IN (AC): CEE 690/16, IN (DC): MC Safety plug 4 mm, OUT: MC Safety plug 4 mm
Dimensions	Size: RAC 34 IEC included, Weight: approx. 120 kg

## COUPLING NX5 BS-3-690-32.2

Three-phase CDN	according to EN/IEC 61000-4-4 and EN/IEC 61000-4-5 for Burst up to 5.5 kV Surge up to 5 kV
EUT supply	3 x 690 V, 32 A, 50/60 Hz 1,000 VDC, 32 A
Connectors	IN (AC): CEE 690/32, IN (DC): MC Safety plug 4 mm, OUT: MC Safety plug 4 mm
Dimensions	Size: RAC 34 IEC included, Weight: approx. 140 kg

## TECHNICAL DETAILS (690 VAC AND 1,000 VDC MODELS WITH ADDITIONAL RANGES)

## COUPLING NX5 BS-3-690-63.3

Three-phase CDN	according to EN/IEC 61000-4-4 and EN/IEC 61000-4-5 for Burst up to 5.5 kV Surge up to 5 kV
EUT supply	3 x 690 V, 63 A, 50/60 Hz 1,000 VDC, 63 A
Connectors	IN (AC): CEE 690/63, IN (DC): MC Safety plug 6 mm, OUT: MC Safety plug 6 mm
Current ranges*	<32 A, 63 A
Dimensions	Size: RAC 34 IEC included, Weight: approx. 180 kg

## COUPLING NX5 BS-3-690-125.3

Three-phase CDN	according to EN/IEC 61000-4-4 and EN/IEC 61000-4-5 for Burst up to 5.5 kV Surge up to 5 kV
EUT supply	3 x 690 V, 125 A, 50/60 Hz 1,000 VDC, 125 A
Connectors	IN (AC): CEE 690/125, IN (DC): MC Safety plug 6 mm, OUT: MC Safety plug 6 mm
Current ranges*	<32 A, 63 A, 125 A
Dimensions	Size: RAC 34 IEC included, Weight: approx. 250 kg

## COUPLING NX5 BS-3-690-200.3

Three-phase CDN	according to EN/IEC 61000-4-4 and EN/IEC 61000-4-5 for Burst up to 5.5 kV Surge up to 5 kV
EUT supply	3 x 690 V, 200 A, 50/60 Hz, 1,000 VDC, 200 A
Connectors	IN (AC): MC Safety plug 10 mm, IN (DC): MC Safety plug 10 mm, OUT: MC Safety plug 10 mm
Current ranges*	<32 A, 63 A, 125 A, 200 A
Dimensions	Size: RAC 34 IEC included, Weight: approx. 290 kg

## TECHNICAL DETAILS

## TECHNICAL DETAILS FOR MODEL FOR DC APPLICATION

## COUPLING FOR DC APPLICATION

coupling NX5-DC bs-1-1000-32	1-phase 5 kV coupling/decoupling network for the compact NX5 & NX7 series, Burst up to 5.5 kV, Surge up to 5 kV, Coupling DC+, DC- and PE (all combinations), Nominal voltage 1.000 VDC, Nominal current 32 A, With TEST ON function
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## OPTIONS

## OPTIONS

RAC 25 IEC	Rack 19", 25 HU, 1317 x 553 x 800 mm (HxWxD), for coupling NX and one generator (e.g. compact NX5)
RAC 34 IEC	Rack 19", 34 HU, 1717 x 553 x 800 mm (HxWxD), for coupling NX and one generator (e.g. compact NX5) or several standalone generators
RAC 38 IEC	Rack 19", 38 HU, 1895 x 553 x 800 mm (HxWxD), for coupling NX for and one generator (e.g. compact NX5) or several standalone generators

## SAFETY OPTIONS

ESS 1	Emergency switch (short circuit), cable 3 m
SWL AD	Safety warning lamp adapter, voltage free contact
SWL	Safety warning lamp, red / green requires ext supply 24 VDC, 1,6 A

## GENERAL DATA

## INTERFACES

sys.link	26 pin high density connector to control an external devices
connector EUT supply	3 x 480 V, CEE plug, 16 A to 125 A, 3 x 690 V, CEE plug, 16 A to 63 A, plugs for all other current ratings
connector to EUT	up to 32 A: 4 mm safety plug, 63 A: 6 mm safety plug, 125 A: 6 mm safety plug, 200 A: 10 mm safety plug

## MAINS (CONTROL)

Supply voltage	85 V - 264 V
Frequency	50/60 Hz
Power	approx. 75 W Standby: 100 mA
Fuses	115 V: 2 x 4 A slow blow, 230 V: 2 x 2 A slow blow

## SAFETY

Safety standard	IEC/EN 61010
Security circuit	Control input (24 VDC)
Warning lamp	Floating contact (max. 60 V/2 A)

## ENVIRONMENT

Temperature	10 °C to 35 °C
Humidity	30 % to 75 %, non condensing
Atmospheric pressure	86 kPa (860 mbar) to 106 kPa (1,060 mbar)



# 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. Subject to change without further notice.