

Technical Specification

No. E-CDN2000A-06-32.doc
Revised: 12.December 2013

1 CDN Type CDN2000A-06-32

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1.1 Introduction

The CDN2000A-06-32 coupling network can be used together with Generators from the MIG, TRA and IMU range. The CDN allows SURGE and EFT pulses to be superimposed onto single and three phase power supply lines.

Two versions of the CDN2000A-06-32 are available. 480V and 690V. They can be used as a coupling network with the following testers:

CDN2000A-06-32 (480V)

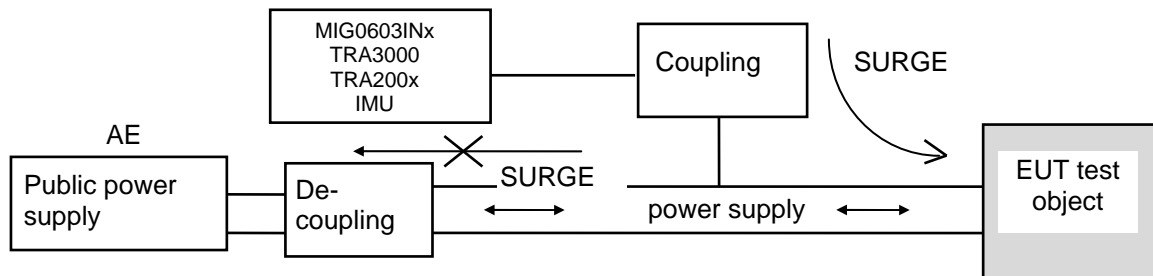
- MIG0603INx range testers with single phase coupling network included,
- MIG0603OS2 without any coupling filter
- MIG1203CWG (6kV CWG only)
- TRA3000, TRA2006
- IMU3000, IMU4000

CDN2000A-06-32 (690V) Attention! Most generators need a special modification to operate at 690V.

- MIG0603INx range testers with single phase coupling network included
- TRA3000 F-S, TRA2006
- IMU3000, IMU4000

2 General

2.1 Brief description of the coupling de-coupling network



Combination wave testers generate a surge pulse with voltage wave shape 1,2/50 μ s at "no load" and a current wave form 8/20 μ s at short circuit. The Surge should only influence the EUT and not the public power supply, therefore the Surge must be coupled to EUT with very low attenuation and must have a very high attenuation to the public power supply.

Coupling paths can be programmed and automatically selected.

2.2 Explanation of the terms used in CDN2000A-06-32

Explanation of the term CDN2000A-06-32

C = coupling, D = de-coupling, N = network, A = automatically operated, 06 = designed for maximum 6kV 1,2/50 μ s, 32 = maximum allowed ac current per phase.

2.3 Standards, applications

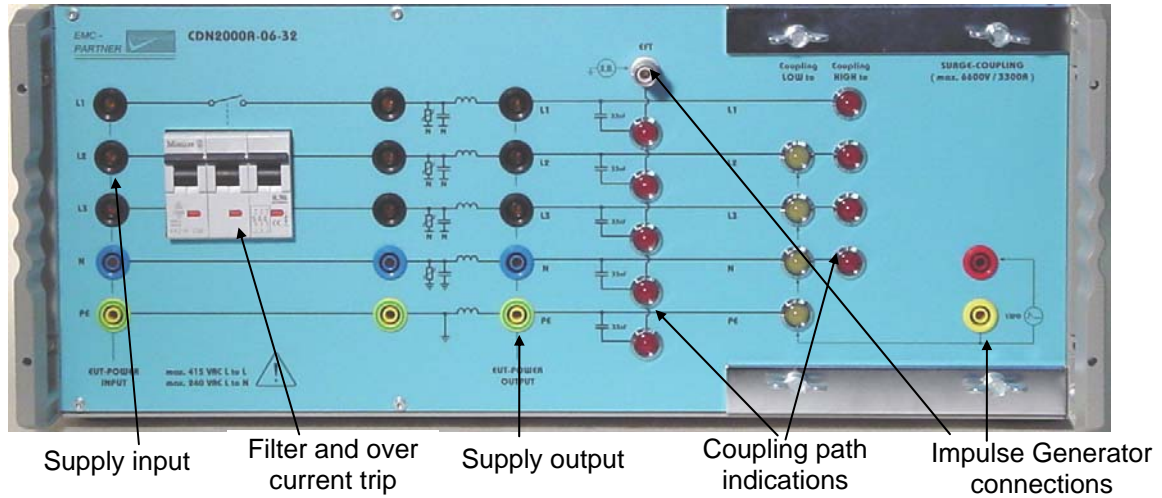
IEC 61000-4-4, EN 61000-4-4, 2012 Electromagnetic compatibility (EMC) - Part 4: Testing and measurement techniques - Section 4: Electrical fast transient/burst immunity test. Basic EMC Publication

IEC 61000-4-5, EN 61000-4-5, 2005 Electromagnetic compatibility (EMC) - Part 4 Testing and measuring techniques - Section 5: Surge immunity test.

ANSI / IEEE 62.41: 1991 American National Standard IEEE Recommended Practice on Surge Voltages in Low Voltage AC Power Circuits.

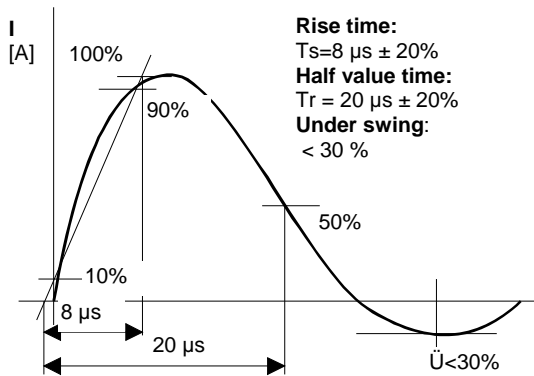
3 CDN circuit, wave shapes definition

The power line input and outputs are located on the front of the CDN.

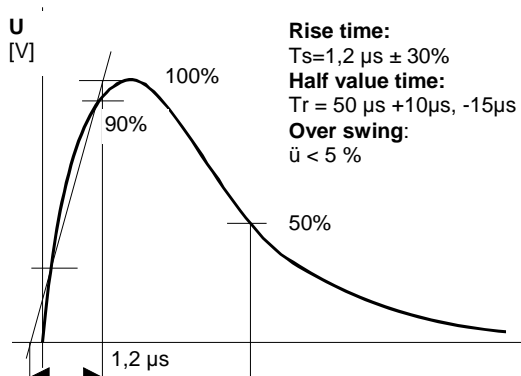


On the left hand side are the EUT power line inputs and in the middle the EUT power line outputs. Surge and Ring wave connections to the impulse generator are located on the right hand side. All coupling paths can be programmed in the IMU, TRA or MIG0603INx generators.

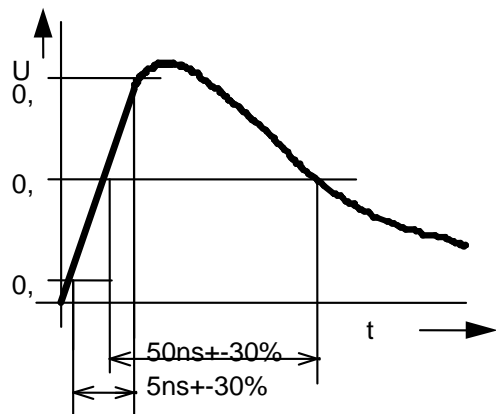
3.1 Wave shape definition at the CDN outputs



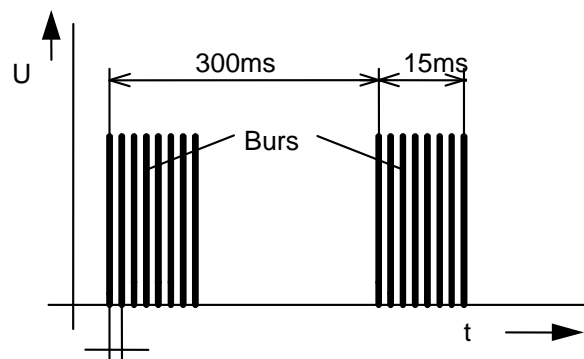
Current into short circuit



Voltage at no load



EFT Pulse into 50 ohm



EFT Event

3.2 Mechanical dimensions, climatic conditions

| | | |
|--------------------|--------------------|-----------------|
| Dimensions: | | |
| Housing | [mm] l x b x h | 520 x 450 x 180 |
| Weight | [kg] | max. 29 |
| Inputs and outputs | on the front panel | |

| | | |
|---------------------------------|------|-----------|
| Environmental condition: | | |
| Temperature range | °C | 0 to 35 ° |
| Humidity | rh % | 25 to 80% |
| Pressure | kPa | 86 to 106 |

3.3 Technical data

| | | |
|-----------------------|--|--|
| Coupling: | Connection between the TESTER and the supply lines of the EUT. | |
| SURGE | Automatically coupling path | In the display of the generators selection |
| IEC 61000-4-5 | L1-PE, L2-PE, L3-PE, N-PE | 10 Ohm 9µF plus 2 Ohm generator |
| | L1-L2, L2-L3, L1-L3, L1-N, L2-N, L3-N | 2 Ohm Generator plus 18µF |
| Maximum voltage | 6000 V | Wave form 1.2/50µs |
| Damping | complies with IEC 61000-4-5 | |
| EFT: | | |
| IEC 61000-4-4 damping | L1+L2+L3+N+PE - Ref. GND | Coupling capacitance 33 nF |
| | complies with IEC 61000-4-4 | |
| DIPS: | | |
| IEC 61000-4-11 | The serial inductance can be bypassed in each phase | The rise time of the interruption comply with IEC 61000-4-11 |
| | applicable only with TRA | 1 to 5 µs on 100 Ohm |

| | | |
|---------------------|-----------------------------|--|
| De-coupling: | | |
| SURGE | complies with IEC 61000-4-5 | |
| EFT | complies with IEC 61000-4-4 | |

3.3.1 Mains Supply 480V version

| | | |
|-----------------------------|---|----------------------------------|
| Mains supply EUT/ac: | Standard version | |
| Mains voltage | Phase - Phase | 480 V max. |
| | Phase - Neutral | 280 V max. |
| | Phase - Earth | 280 V max. |
| Synchronisation | Automatically with coupling path selection. | See also chapter 5.1 |
| Nominal current | per phase | 32 A |
| Over-current trip | constant current: | Trip at 32 A |
| | Short time | 125 A to 250 A magnetic trip <1s |

3.3.2 Mains Supply 690V version

| | | |
|-----------------------------|--|----------------------------------|
| Mains supply EUT/ac: | Standard version | |
| Mains voltage | Phase - Phase | 690 V max. |
| | Phase - Neutral | 400 V max. |
| | Phase - Earth | 400 V max. |
| Synchronisation | Automatically with coupling path selection. See also chapter 5.1 Synchronisation | |
| Nominal current | per phase | 32 A |
| Over-current trip | constant current: | Trip at 32 A |
| | Short time | 125 A to 250 A magnetic trip <1s |

3.3.3 DC Supply

| | | |
|----------------------|----------------------------------|------|
| Supply EUT/dc | With current breaker | |
| Supply voltage | Phase - Phase or Phase - neutral | 110V |
| Nominal current | All phases | 30 A |
| Supply EUT/dc | Without current breaker | |
| Supply voltage | Phase - Phase or Phase - Null | 220V |
| Nominal current | L to L/N | 30 A |
| | L1//L2 to L3//N | 60 A |

3.4 Options to CDN2000A-06-32



Option 480V /CMC is only applicable with MIG0603INx or TRA2006

| Options: | Power line voltage | Power line current |
|--------------------|-----------------------------|---------------------------|
| Option 480 V / CMC | L1+L2+L3+N to PE 480V ± 10% | 32 A per phase |

Explanation of OPTION 480V/CMC see pages at the end of the user manual.

3.5 EMCP Generators with SURGE circuit and AC-mains coupling

| Generator | Generator max. AC-Voltage | 1ph-Coupling | 1ph: All to PE | 3ph Coupling | 3ph: All to PE |
|--|-----------------------------|--------------|----------------|--|---|
| TRA3000 | 280V L/N- PE L to N 280V | intern | no | + CDN2000A-06-32 or + CDN2000-06-25 or + CDN2000-06-32 + CDN2000-06-63 | no |
| TRA2004 | 280V L/N- PE L to N 280V | intern | no | + CDN2000A-06-32 or + CDN2000-06-25 or + CDN2000-06-32 + CDN2000-06-63 | no |
| TRA2006 Options: 10/700, 100kHz Ring | 280V L/N- PE L to N 280V | intern | yes | + CDN2000A-06-32 or + CDN2000-06-25 or + CDN2000-06-32 + CDN2000-06-63 | + CDN2000A-06-32 OPTION 480V / CMC |
| MIG0603INx | 280V L/N- PE L to N 280V | intern | no | + CDN2000A-06-32 or + CDN2000-06-25 or + CDN2000-06-32 + CDN2000-06-63 | no |
| IMU3000 | 280V L/N- PE L to N 280V | intern | no | + CDN2000A-06-32 or + CDN2000-06-25 or + CDN2000-06-32 + CDN2000-06-63 | no |