

# CDN 253

3 Phase Surge and Burst  
Coupling Network



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# CDN 253

## 3-phase surge and burst coupling network

- For EUT power supplies up to 1000V
- 100A per phase with generous overload capacity
- Complies with IEC/EN 61000-4-4 and -5 and new draft standards
- Automatic coupling selection
- Optional electrical trolley

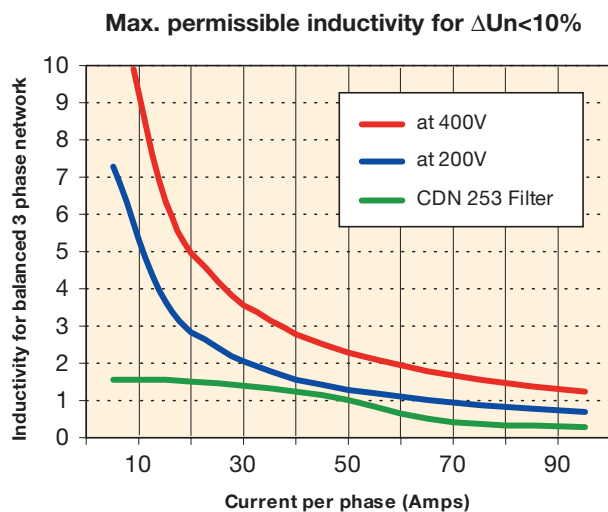


Electronic controls are becoming ever more prevalent in high power consumption devices and industrial installations. With this comes a growing need for high current coupling networks for comprehensive EMC testing of entire assemblies. At the same time the higher phase-to-phase voltages of industrial power supplies have to be matched. New draft standards take this tendency into account and specify the relevant properties of couplers for use at high current levels.

The combined coupling network type CDN 253 fulfils all the requirements called for in the Burst standard IEC / EN 61000-4-4 and the Surge standard IEC/EN 61000-4-5 including the new features concerning high currents. The form of construction selected suits the demands placed on the instrument in its working environment. In its basic form the coupler is mounted on a palette to facilitate moving it around in an EMC laboratory or in a development workshop. High current couplers often have to be taken to a test site since it is commonly impossible to move a large installation into the laboratory. For more convenience and increased safety a practical, battery-operated trolley is available which, with its power drive and braking features, eases manoeuvring the coupler even on ramps and uneven surfaces.

Injecting interference pulses into power connections always involves a careful weighing up of partially conflicting requirements. On the one hand the power network has to be protected from the interference signals while the effects of the pulses are concentrated on the item under test, yet on the other hand the back filter must not result in any significant voltage loss. In order to keep voltage losses within reasonable limits with increasing current levels, the IEC has defined three classes of filter

inductances, namely: up to 20A, 20A to 60A and 60A to 100A. Classic high current couplers cannot therefore be used any longer for lower current levels since the filtering effect is insufficient. Through the use of special choke technology Schaffner has managed to avoid the complicated disadvantage of using several couplers. By using an auto-adaptive back filter the CDN 253 fulfils the requirements for both protection and voltage loss over the range from just a few amps to full load.

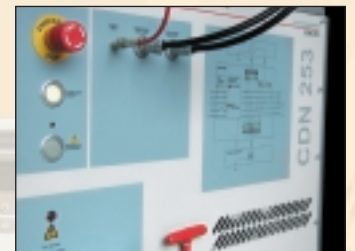
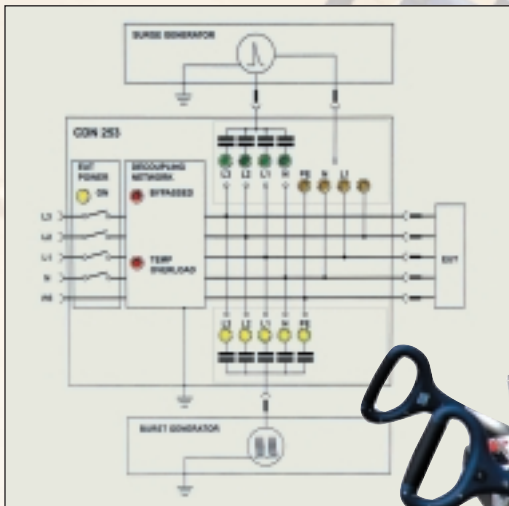




Further construction features make the unit even more universal. The nominal maximum current rating of 100A per phase can, during short test periods, be massively exceeded. The unit will tolerate the frequently encountered inrush currents without complaint and, in extreme cases, the back filter can be by-passed and only be brought into operation as and when needed. The CDN 253 is hence usable where otherwise a 150A or 200A unit would be necessary.

Safety circuits and temperature monitoring protect both the user's installation as well as the CDN 253 itself from damaging overloads.

The range of coupling modes offered exceeds the requirements of the standards. All the coupling conditions are automatically brought into operation by the associated Schaffner generators. Both Surge and Burst generators can be permanently connected in parallel with the active generator determining the actual coupling mode in each case. A display on the coupler indicates the currently implemented coupling mode.



The CDN 253 is tested for safety in compliance with IEC 61010. The rugged connection terminals are tucked away under a protective cover while a key-switch ensures that only authorised personnel can operate the unit. The Emergency Off switch interrupts the power feed to all peripheral current carrying connections and an "Interlock" safety circuit enables other elements in the test rig to be incorporated into the safety concept.



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### Technical Specifications

CDN 253

Pulse voltages

EUT power supply

EUT connectors

Decoupling conditions

Coupling modes, Surge

Coupling modes, Burst

Instrument power supply

Dimensions L x D x H mm

Weight

### Option

Battery-powered trolley

Weight

### Ordering information

CDN 253

INA 283

### CDN 253

3-phase coupling network for Burst and Surge interference pulses as per  
IEC/EN 61000-4-4 & IEC/EN 61000-4-5 and other standards  
8kV max.

1000Vac (IEC) phase-to-phase

660Vac (UL/CSA) phase-to-phase

100A nom. continuous current / phase

Screw-terminals, 200A, up to 95mm<sup>2</sup>, AWG 4-000

As per IEC 61000-4-4 & IEC 61000-4-5

Differential, Common to PE, Lines to PE

Line to reference ground; all combinations of lines to reference ground

85 - 270Vac, 150 - 400Vdc, 0 - 400Hz

1350 x 700 x 900 (without basal palette)

280kg approx.

### INA 283

Transport cart, battery-driven, with control console, control handgrips, brake and emergency stop feature, charger.

90kg approx.

3-phase high current coupler for Surge and Burst, including interconnecting cables suitable for Schaffner generators.

Powered transport cart for the CDN 253

**SCHAFFNER**

### SALES SUBSIDIARIES

#### HEADQUARTERS

Schaffner EMV AG

CH-4542 Luterbach

Switzerland

Tel: [+41] 32 6816 626

Fax: [+41] 32 6816 641

E-mail: sales@schaffner.com

#### China

Schaffner Beijing Liaison Office

Tel: [+86] 10 6510 1761

chinasales@schaffner.com

#### Japan

Schaffner EMC KK

Tel: [+81] 3 5456 0180

japansales@schaffner.com

#### USA

Schaffner EMC Inc

Tel: [+1] 732 225 9533

Toll Free: 0800 367 5566

usasales@schaffner.com

#### France

Schaffner EMC S.A.S.

Tel: [+33] 1 34 34 30 60

francesales@schaffner.com

#### Singapore

Schaffner EMC Pte Ltd

Tel: [+65] 6377 3283

singaporesales@schaffner.com

#### Germany

Schaffner EMC Systems GmbH

Tel: [+49] 30 56 59 88 35

desales@schaffner.com

#### Switzerland

Schaffner EMV AG

Tel: [+41] 32 6816 626

switzerlandsales@schaffner.com

#### Italy

Schaffner EMC Srl

Tel: [+39] 02 66 04 30 45

italysales@schaffner.com

#### UK

Schaffner Ltd

Tel: [+44] 118 977 0070

uksales@schaffner.com

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**www.schaffner.com**