



CDN 118A series

COUPLING / DECOUPLING NETWORK FOR UNSHIELDED, SYMMETRICAL LINES



- As per IEC 61000-4-5 Ed.3, Fig 10/A4, ITU K.44
- Dataline surge testing
- Easy to use bench top housing
- Conforms to IEC 61000-4-5
- Complete set includes all accessories
- Supported by the NSG 3040A and NSG 3060A series
- Exchangeable AE port protection

Teseq's CDN 118A series coupling-decoupling network enables convenient surge testing of telecommunications equipment to IEC / EN 61000-4-5 Ed.3 which, specifies a 1.2 / 50 µs or 10 / 700 µs pulse. The CDN 118A series includes the special decoupling network and coupling devices that are required for these tests. The design of the CDN is given in IEC 61000-4-5 Ed.3 Figure 10 and A.4.

CDN 118A series is available in two versions

CDN 118A-C4-4-1: for NSG 3040A series up to 4.8 kV CDN 118A-C6-4-1: for NSG 3060A series up to 6.6 kV

4 lines, current 1 A 4 lines, current 1 A

The CDN 118 can be easily interfaced with the EUT and is designed as a bench top unit. It can be used with Teseq's NSG 30x0A-series or any industry standard surge generator with the appropriate connector adapter.

All coupling methods described in IEC / EN 61000-4-5 for unshielded symmetrical line pairs can be performed in common mode coupling (line-to-ground).

- Coupling 1.2/50 µs: GDT for each coupled line
- Coupling 10/700 µs: GDT for each coupled line + short circuit bridge





Coupling 1.2/50 μs: Rc = 4 x 160 Ω

Coupling 10 / 700 $\mu s:\ Rc$ = 4 x 25 Ω

AE Port protection modules with 4 lines can be plugged in manually. The different voltage levels and impedances of the modules makes the CDN 118 A series to a universal device for Surge testing for signal and data lines.

- **DPM 50-1**: Module 50 V, bidirectional diodes, Impedance to GND: 1 k Ω per line
- **DPM 50**: Module 50 V. bidirectional diodes. Impedance to GND: open circuit
- **VPM 250-100**: Varistor Protection Module, 250 VAC, 350 VDC, Impedance to GND: $100 \text{ k}\Omega$

The CDN 118A series is a complete set of coupling elements consisting of:

- The coupling-decoupling network itself
- Interface cables to the surge generator
- DPM 50-1, AE port protection device for 4 lines
- 4 coupling bridges with a GDT spark gap device
- 4 short circuit bridges
- Short circuit bridge 19 mm for coupling differential or common mode





CDN 118A series

COUPLING / DECOUPLING NETWORK FOR UNSHIELDED, UNSYMMETRICAL INTERCONNECTION LINES

| CDN 118A-C4-4-1 4.8 kV (designed for NSG 3040A series) CDN 118A-C6-4-1 6.6 kV (designed for NSG 3060A series) Parameter Value Max operating voltage: AC 250 V, DC 350 V (depending AE protection module) Max operating current: 1.A Max pulse voltage: CDN 118A-C4-4-1: 4.8 kV CDN 118A-C4-4-1: 6.6 kV Ohmic resistance per path: <1.0 Ω (typical 0.49 Ω) Decoupling chokes 1 kHz: 20 mH nominal each line ± 10 % pairwise current compensated Transmission 3 dB BW: 100 kHz (@ 600 Ω load) Connectors 4 mm safety banana, to generator and EUT Pulse: Surge: 1.2 / 50 µs and 10 / 700 µs pulse Surge coupling: -0.5 µF capacitor via 40 Ω -6GT: Gas discharge tube (90V) via 40 Ω - ABG: Avalanche breaking diode (140V) via 40 Ω - ABG: Avalanche breaking diode (140V) via 40 Ω Included Accessories I IV 1 HVS HV cable Banana – Banana, 0.5 m, 1 x red, 1 x black Earth connection 1 brass bar 0.3 m including mounting parts, screw M4 x 10 mm User manual Delivered on USB memory card Calibration certificate included PO | Model | Max. impulse voltage | | |
|---|----------------------------|---|------------------------------|-------------------------------|
| Parameter Value Max operating voltage: AC 250 V, DC 350 V (depending AE protection module) Max operating current: 1 A Max pulse voltage: CDN 118A-C4-4-1: 4.8 kV CDN i18A-C6-4-1: 6.6 kV Ohmic resistance per path: <1.0 Ω (typical 0.49 Ω) | CDN 118A-C4-4-1 | 4.8 kV | (designed for NSG 3040A seri | es) |
| Max operating voltage: AC 250 V, DC 350 V (depending AE protection module) Max operating current: 1 A Max pulse voltage: CDN 118A-C4-41: 4.8 kV CDN itlsA-C6-41: 6.6 kV Ohmic resistance per path: <1.0 (typical 0.49 Ω) | CDN 118A-C6-4-1 | 6.6 kV | (designed for NSG 3060A seri | es) |
| Max operating voltage: AC 250 V, DC 350 V (depending AE protection module) Max operating current: 1 A Max pulse voltage: CDN 118A-C4-41: 4.8 kV CDN itlsA-C6-41: 6.6 kV Ohmic resistance per path: <1.0 (typical 0.49 Ω) | | | | |
| Max operating current: 1.A Max pulse voltage: CDN 118A-C4-4:1: 4.8 kV CDN 118A-C6-4:1: 6.6 kV Ohmic resistance per path: <1.0 Ω (typical 0.49 Ω) | Parameter | Value | | |
| Max pulse voltage:CDN 118A-C4-4-1:4.8 kV CDN 118A-C6-4-1:6.6 kVOhmic resistance per path:<1.0 (typical 0.49 Ω) | Max operating voltage: | AC 250 V, DC 350 V (depending AE protection module) | | |
| CDN 118A-C6-4-1:6.6 kVOhmic resistance per path:<1.0 Ω (typical 0.49 Ω) | Max operating current: | 1A | | |
| Decoupling chokes 1 kHz:20 mH nominal each line ± 10 % pairwise current compensatedTransmission 3 dB BW:100 kHz (@ 600 Ω load)Connectors4 mm safety banana, to generator and EUTPulse:Surge:1.2 / 50 µs and 10 / 700 µs pulseSurge coupling:-0.5 µF capacitor via 40 Ω - GDT: Gas discharge tube (90V) via 40 Ω - ABG: Avalanche breaking diode (140V) via 40 ΩIncluded AccessoriesImage: Coupling:1 HVSHV cable Banana – Banana, 0.5 m, 1 x red, 1 x blackEarth connection1 brass bar 0.3 m including mounting parts, screw M4 x 10 mmUser manualDelivered on USB memory cardCalibration certificateincludedVPM 250-100Varistor Module 250 V, 250 VAC, 350 VDC, Impedance to GND: 100 kΩDPM 50Module 50 V, bidirectional diodes, Impedance to GND: 100 kΩDPM 50Module 50 V, 210 µC approx. 14 kgSize: (L x W x H)19″, 3 HU, 447 x 500 x 143 mm19″, 6 HU, 447 x 500 x 186 mmWeight:approx. 10 kgapprox. 14 kgSafety StandardIEC/EN 61010IEC/EN 61010Environment10 °C to 40 °CHumidity10 % to 80 %, non-condensing Atmospheric pressure86 kPa (860 mbar) to 106 kPa (1,060 mbar) | Max pulse voltage: | | | |
| Transmission 3 dB BW:100 kHz (@ 600 Ω load)Connectors4 mm safety banana, to generator and EUTPulse:Surge:1.2 / 50 µs and 10 / 700 µs pulseSurge coupling:- 0.5 µF capacitor via 40 Ω - GDT: Gas discharge tube (90V) via 40 Ω - ABG: Avalanche breaking diode (140V) via 40 ΩIncluded Accessories-1 HVSHV cable Banana – Banana, 0.5 m, 1 x red, 1 x blackEarth connection1 brass bar 0.3 m including mounting parts, screw M4 x 10 mmUser manualDelivered on USB memory cardCalibration certificateincludedProtection module optionsVaristor Module 250 V, 250 VAC, 350 VDC, Impedance to GND: 100 kΩDPM 50-10Varistor Module 250 V, 250 VAC, 350 VDC, Impedance to GND: 100 kΩDPM 50Module 50 V, bidirectional diodes, Impedance to GND: 100 kΩDimension, WeightCDN 118A-C4-41CDN 118A-C6-4-1Size: (L x W x H)19", 3 HU, 447 x 500 x 143 mm19", 6 HU, 447 x 500 x 186 mmWeight:approx. 10 kgapprox. 14 kgSafety StandardIEC/EN 61010IEC/EN 61010EnvironmentI10 % to 80 %, non-condensing Atmospheric pressure86 kPa (860 mbar) to 106 kPa (1,060 mbar) | Ohmic resistance per path: | <1.0 Ω (typical 0.49 Ω) | | |
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| Pulse:Surge:1.2 / 50 μs and 10 / 700 μs pulseSurge coupling:-0.5 μF capacitor via 40 Ω - GDT: Gas discharge tube (90V) via 40 Ω - ABG: Avalanche breaking diode (140V) via 40 ΩIncluded Accessories | Transmission 3 dB BW: | 100 kHz (@ 600 Ω load) | | |
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| - GDT: Gas discharge tube (90V) via 40 Ω - ABG: Avalanche breaking diode (140V) via 40 Ω Included Accessories 1 HVS HV cable Banana – Banana, 0.5 m, 1 x red, 1 x black Earth connection 1 brass bar 0.3 m including mounting parts, screw M4 x 10 mm User manual Delivered on USB memory card Calibration certificate included Protection module options VPM 250-100 VPM 250-100 Varistor Module 250 V, 250 VAC, 350 VDC, Impedance to GND: 100 kΩ DPM 50-1 Module 50 V, bidirectional diodes, Impedance to GND: 100 kΩ DPM 50 Module 50 V, bidirectional diodes, Impedance to GND: 00 kΩ Dimension, Weight CDN 118A-C4-4.1 CDN 118A-C4-4.1 CDN 118A-C6-4.1 Size: (L x W x H) 19", 3 HU, 447 x 500 x 143 mm 19", 6 HU, 447 x 500 x 186 mm Weight: approx. 10 kg approx. 14 kg Safety Standard IEC/EN 61010 IEC/EN 61010 Environment IEC/EN 61010 IEC/EN 61010 Environment 10 % to 80 %, non-condensing Atmospheric pressure 86 kPa (860 mbar) to 106 kPa (1,060 mbar) 86 kPa (860 mbar) to 106 kPa (1,060 mbar) | Pulse: | Surge: 1.2 / 50 μs and 10 / 700 μs pulse | | |
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| DPM 50 Module 50 V, bidirectional diodes, Impedance to GND: open circuit Dimension, Weight CDN 118A-C4-4-1 CDN 118A-C6-4-1 Size: (L x W x H) 19", 3 HU, 447 x 500 x 143 mm 19", 6 HU, 447 x 500 x 186 mm Weight: approx. 10 kg approx. 14 kg Safety Standard IEC/EN 61010 IEC/EN 61010 Environment Intervention Intervention Temperature 10 °C to 40 °C Impedance Humidity 10 % to 80 %, non-condensing Atmospheric pressure 86 kPa (860 mbar) to 106 kPa (1,060 mbar) Impedance | VPM 250-100 | Varistor Module 250 V, 250 VAC, 350 VDC, Impedance to GND: 100 $k\Omega$ | | |
| Dimension, Weight CDN 118A-C4-4-1 CDN 118A-C6-4-1 Size: (L x W x H) 19", 3 HU, 447 x 500 x 143 mm 19", 6 HU, 447 x 500 x 186 mm Weight: approx. 10 kg approx. 14 kg Safety Standard IEC/EN 61010 IEC/EN 61010 Environment I0 °C to 40 °C Immidity 10 % to 80 %, non-condensing Atmospheric pressure 86 kPa (860 mbar) to 106 kPa (1,060 mbar) | DPM 50-1 | Module 50 V, bidirectional diodes, Impedance to GND: 1 $k\Omega$ per line | | |
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| Temperature10 °C to 40 °CHumidity10 % to 80 %, non-condensingAtmospheric pressure86 kPa (860 mbar) to 106 kPa (1,060 mbar) | Safety Standard | IEC/EN 61 | 010 | IEC/EN 61010 |
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Specifications subject to change without notice. This product is designed and manufactured under the strict quality and environmental requirements of the ISO 9001. This document has been carefully checked. However, AMETEK CTS does not assume any liability for errors or inaccuracies

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