



FRANKONIA

EMC Test-Systems GmbH

CDNs DATASHEET



COUPLING/DECOUPLING NETWORKS (CDN) FOR IMMUNITY TESTING ACCORDING TO IEC / EN 61000-4-6

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IMMUNITY TESTING

CDNs are the preferred coupling and decoupling devices, for reasons of test reproducibility and protection of the auxiliary equipment (AE). CDNs shall be used for appropriate coupling of the disturbing signal to the various cables connected to the equipment under test (EUT) and for preventing applied test signals from affecting other devices, equipment and systems that are not under test.

Following you find descriptions of the most frequently used types for unshielded cables CDN-AF, CDN-M, CDN-T and CDN-S for shielded cables. Please request information on types not specified here.

EMISSION TESTING

Some selected CDNs meet the requirements of CISPR 15 and CISPR 22 for emission testing in the extended frequency range of 80 MHz to 300 MHz. Along with the common mode impedance a curve of the voltage division factor over the frequency range of up to 300 MHz is supplied with these CDNs. Currently the types CDN-AF2, CDN-M2, CDN-M3 and CDN-M2+3 meet the requirements of CISPR 15 / CISPR 22.

Please request information on types not specified here.

EXTENDED FREQUENCY RANGE

Although the requirements in the standard are specified for the frequency range 150 kHz up to 80 MHz, the applicable frequency range depends on the normal installation and operation conditions of the equipment to be tested. In general, the stop frequency will be 80 MHz.

In some cases, where small-sized equipment is considered (dimension $< \lambda/4$), dedicated product standards may prescribe that the stop frequency is extended up to a maximum of 230 MHz.

When using this test method up to higher frequencies, results are influenced by: the size of equipment, the type(s) of interconnecting cables used, and the availability of special CDNs, etc. Further guidance for proper application should be supplied in the dedicated product standards.

On the other hand NAMUR NE 21 extends the applicable frequency down to 10 kHz.

SETTING THE OUTPUT VOLTAGE AT THE CDNS EUT PORT

1. The test generator (RF out) shall be connected via the 6 dB-attenuator to the RF-input port of the CDN.
2. The EUT port of the CDN shall be connected in common mode via a 150 Ω to 50 Ω adapter to a measuring equipment having a 50 Ω input impedance.
3. The AE-port shall be loaded in common mode with a 150 Ω to 50 Ω adapter, terminated with 50 Ω . The assembly is outlined below.

With direct injection to screened cable (CDN-S types), the 150 Ω load at the AE-port is not required as the screen will be connected to the ground reference plane at the AE-port side.

With the CDN M-types, CDN AF-types and CDN T-types the 150 Ω connector is according to standard prescribed, yet the calibration values for these CDN types are virtually independent of the load.

This is due to the fact that these types have capacitors against ground at the AE-port side, which generate a RF-short circuit, comparable to those of the S-types.

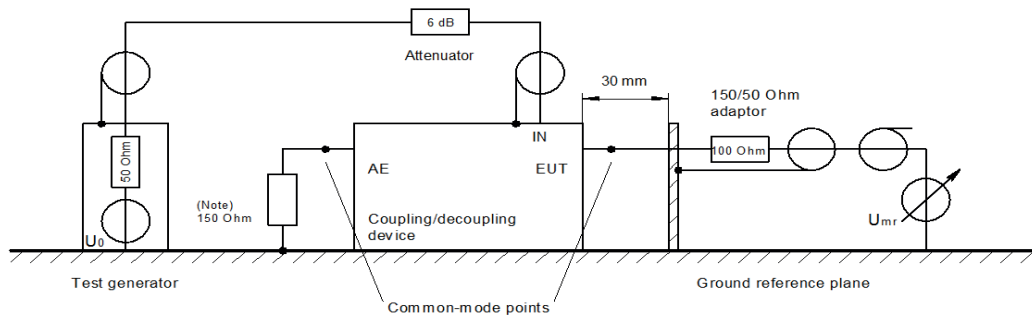
Thus with the CDN M-types, CDN AF-types and CDN T-types the load of 150 Ω at the auxiliary equipment connector can be dispensed with.

CALIBRATION

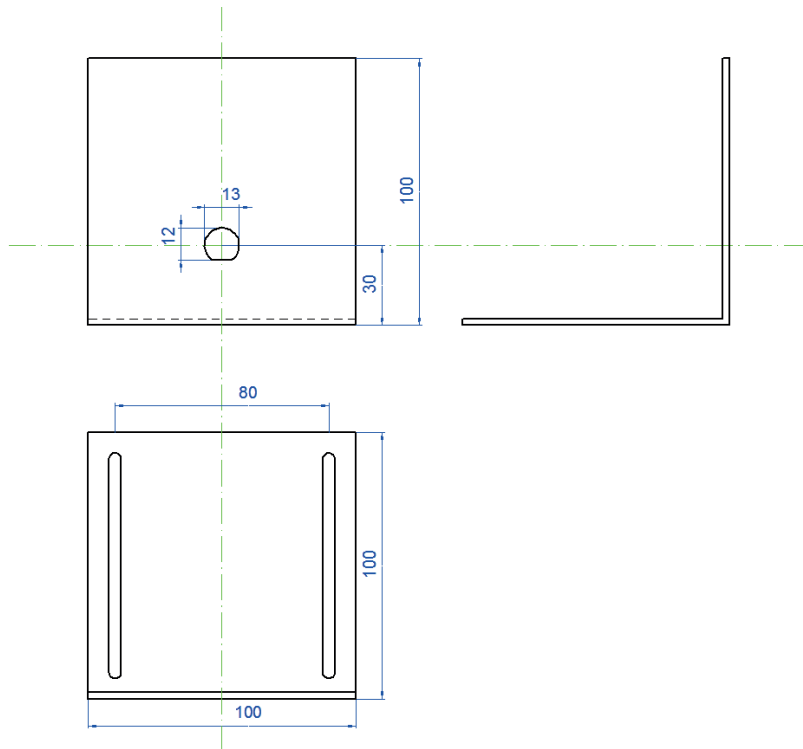
In order to calibrate a CDN you require:

- ✓ specific calibration adapter
- ✓ mounting bracket
- ✓ 150 Ω to 50 Ω adapter

For the first CDN a mounting bracket and a 150 Ω to 50 Ω adapter need to be acquired. For each additional CDN only a specific calibration adapter needs to be acquired.

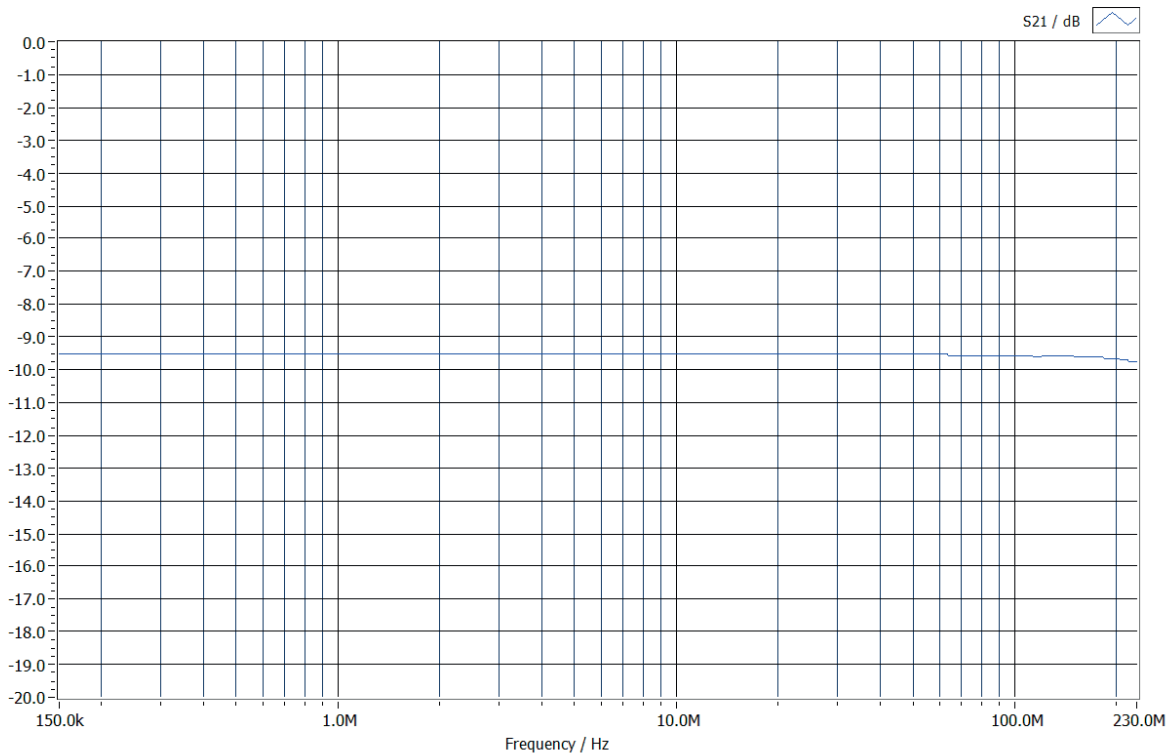


NOTE: THE 150 Ω LOADING E.G. A 150 Ω TO 50 Ω ADAPTOR TERMINATED WITH A 50 Ω LOAD), AT THE AE-PORT SHALL ONLY BE APPLIED TO UNSCREENED CABLES (SCREENED CABLES HAVE THEIR SCREEN CONNECTED TO THE GROUND REFERENCE PLANE AT THE AE-SIDE).



MOUNTING BRACKET (DIMENSIONS)

Network Analyser HP8751A (S.-No.: 3315J01756), Test Set 87512A (S.-No. MY43100614)
Insertion loss 150/50 Ohm Adapter (two in series)



Insertion loss 150 Ohm to 50 Ohm adapter (two in series)

Ordering Information

Art.-No.: KAL-ANG

Mounting bracket for calibration adapter incl. 50/150 Ohm adapter and 50 Ohm termination



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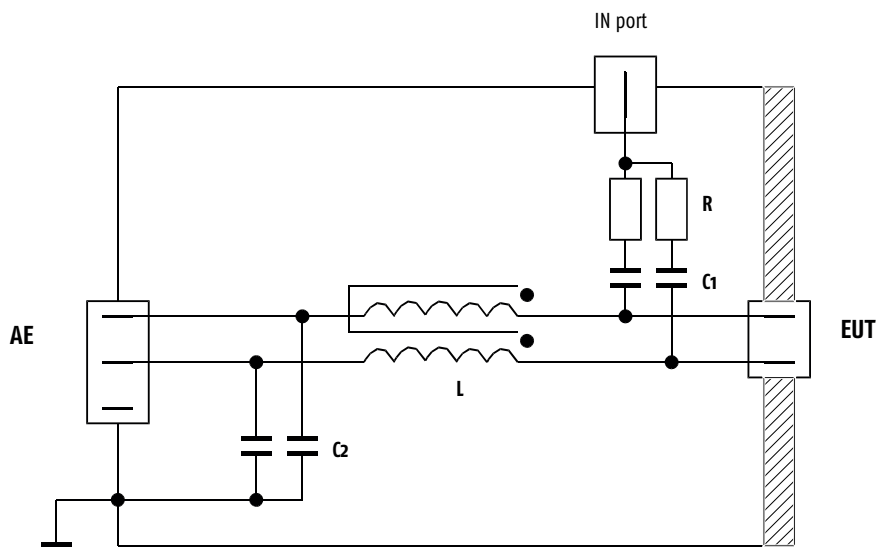
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CDN-AF2 / -AF3 / -AF4 / -AF5 / -AF8



Description

CDN-AF type networks are required for coupling and decoupling disturbing signals to an unscreened cable with non-balanced lines.



Simplified diagram for the circuit of CDN-AF2

Type	CDN-AF2/3/4/5/8
RF In	
Frequency range (RF In)	(10 kHz) 150 kHz – 80 MHz / 230 MHz (300 MHz)
Power Rating (RF In)	6 W (continuous)
Decoupling attenuation (RF In – AE)	9 20 dB (150 kHz – 230 MHz) 9 40 dB (1 MHz – 100 MHz)
Insertion loss (RF In – EUT)	10 dB ± 1 dB (150 kHz – 80 MHz); 10 dB + 3 dB (150 kHz – 230 MHz)
Connector	BNC
EUT / AE	
Maximum Input Voltage AC	100 V
Maximum Input Voltage DC	150 V
Current Rating (AE – EUT)	1 A
Insertion loss (AE – EUT)	< 1dB (DC – 100 kHz)
Connectors	Terminal block; safety banana jack
Mechanical Data	
Dimensions (B x H x T)	160mm x 84.5mm x 240mm
Ordering Information	
Art.-No.: AF2	CDN-AF2, terminal block 2 pole, 150 kHz – 300 MHz
Art.-No.: AF2-MC	CDN-AF2-MC, 4mm safety banana jack, 150 kHz – 300 MHz
Art.-No.: AF2-N	CDN-AF2-10k-MC 4mm safety banana jack, 10 kHz – 230 MHz
Art.-No.: KAL-AD/AF2-T2	Calibration adapter, CDN-AF2 / T2
Art.-No.: AF3	CDN-AF3, terminal block 3 pole, 150 kHz – 230 MHz
Art.-No.: AF3-MC	CDN-AF3-MC, 4mm safety banana jack, 150 kHz – 230 MHz
Art.-No.: AF3-N	CDN-AF3-10k-MC 4mm safety banana jack, 10 kHz – 230 MHz
Art.-No.: AF4	CDN-AF4, terminal block 4 pole, 150 kHz – 230 MHz
Art.-No.: AF4-MC	CDN-AF4-MC, 4mm safety banana jack, 150 kHz – 230 MHz
Art.-No.: AF4-N	CDN-AF4-10k-MC, 4mm safety banana jack, 10 kHz – 80 MHz
Art.-No.: KAL-AD/AF4-T4	Calibration adapter, CDN-AF4 / T4
Art.-No.:	CDN-AF5-MC, 4mm safety banana jack, 150 kHz – 230 MHz
Art.-No.:	CDN-AF5-10k-MC, 4mm safety banana jack, 10 kHz – 230 MHz
Art.-No.: AF8	CDN-AF8, terminal block 8 pole, 150 kHz – 230 MHz
Art.-No.: KAL-AD/AF8	Calibration adapter, CDN-AF8
Art.-No.:	CDN-AF8-10k-Sub-D, 9-pin Sub-D, 10 kHz – 230 MHz
Art.-No.:	Calibration adapter, CDN-AF8-Sub-D, CDN-CAN-L5
Art.-No.:	CDN-AF9, terminal block 9 pole, 150 kHz – 230 MHz
Art.-No.:	Calibration adapter, CDN-AF9

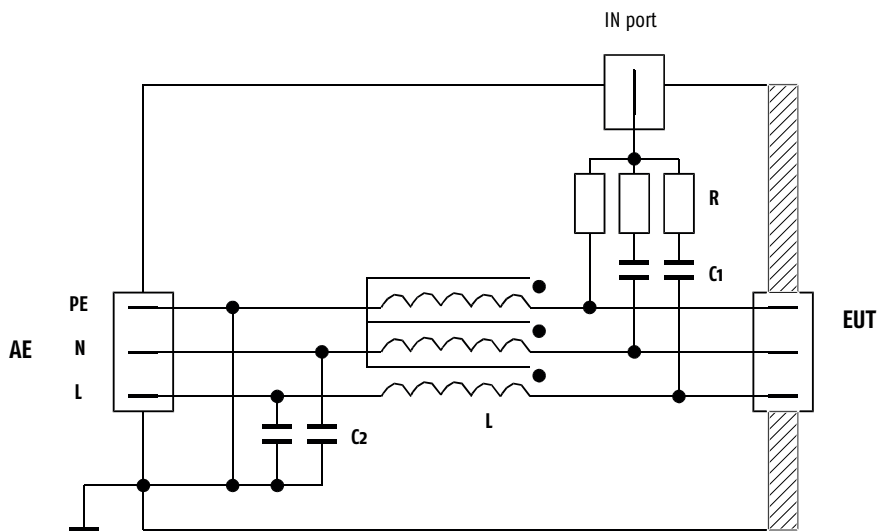


CDN-M1 / -M2 / -M2+3 / -M4 / -M5



Description

CDN M-types are used for all power supply lines.
 Numerous types are available for EUT voltages of up to 1000 VAC and EUT currents of up to 100 A.



Simplified diagram for the circuit of CDN-M3 used with unscreened supply (mains) lines



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Type	CDN-M1/2/3/4/5	CDN-M2/3/4/5/-HV	CDN-M2/3/4/5-63A/100A
RF In			
Frequency range (RF In)	(10 kHz) 150 kHz – 80 MHz / 230 MHz (300 MHz)		
Power Rating (RF In)	6 W (continuous)		
Decoupling attenuation (RF In – AE)	9 30 dB (150 kHz – 80 MHz) 9 20 dB (80 MHz – 230 MHz)	9 30 dB (150 kHz – 80 MHz) 9 15 dB (80 MHz – 230 MHz)	
Insertion loss (RF In – EUT)	10 dB +2/-1 dB (150 kHz – 80 MHz) 10 dB + 5 dB (80 MHz – 230 MHz)	10 dB +2/-1 dB (150 kHz – 80 MHz) 10 dB + 5 dB (80 MHz – 230 MHz)	
Connector	BNC		
EUT / AE			
Maximum Input Voltage AC (L-PE)	250 V	600 V (1000 V VHV-Types)	600 V
Maximum Input Voltage DC	400 V	1000 V	600 V
Current Rating (AE – EUT)	16 A / 32 A / 63 A / 100 A; (M1 / M2+3 I _{PE} <0.5 A)		
Insertion loss (AE – EUT)	< 1dB (DC – 100 kHz)		
Connectors	4 mm safety banana jack		6 mm round connectors for current > 32 A Adequate safety test leads are included
Mechanical Data			
Dimensions (B x H x T)	160mm x 84.5mm x 240 mm	200mm x 122.5 mm x 400 mm	
Ordering Information			
Art.-No.: M1	CDN-M1, 4mm safety banana jack, 150 kHz – 230 MHz		
Art.-No.: L1	CDN-L1, 4mm safety banana jack, 150 kHz – 230 MHz		
Art.-No.: M1-N	CDN-M1-10k , 4mm safety banana jack, 10 kHz – 230 MHz		
Art.-No.: M2	CDN-M2, 4mm safety banana jack, 150 kHz – 300 MHz		
Art.-No.: M2-N	CDN-M2-10k , 4mm safety banana jack, 10 kHz – 230 MHz		
Art.-No.: M2/32	CDN-M2-32A , 4mm safety banana jack, 150 kHz – 230 MHz		
Art.-No.: M2/32-HV	CDN-M2-32A-HV , 4mm safety banana jack, 150 kHz – 230 MHz		
Art.-No.: M2/63-HV	CDN-M2-63A-HV , 6mm round connector, 150 kHz – 80 MHz		
Art.-No.: M2/100-HV	CDN-M2-100A-HV , 6mm round connector, 150 kHz – 80 MHz		
Art.-No.: M2+M3	CDN-M2+3 , 4mm safety banana jack, 150 kHz – 300 MHz		
Art.-No.: M2+M3-N	CDN-M2+3-10k , 4mm safety banana jack, 10 kHz – 230 MHz		
Art.-No.: M2+M3/32	CDN-M2+3-32A , 4mm safety banana jack, 150 kHz – 230 MHz		
Art.-No.: M3	CDN-M3 , 4mm safety banana jack, 150 kHz – 300 MHz		
Art.-No.: M3-L	CDN-M3-L, L1/L2/L3, 4mm safety banana jack, 150 kHz – 230 MHz		



Art.-No.: M3/32	CDN-M3-32A , 4mm safety banana jack, 150 kHz – 230 MHz
Art.-No.: M3/32-LN	CDN-M3-L1L2N-32A , L1/L2/N, 4 mm safety banana jack, 150 kHz – 230 MHz
Art.-No.: M3/32-L	CDN-M3-L-32A , L1/L2/L3, 4mm safety banana jack, 150 kHz – 230 MHz
Art.-No.:	CDN-M3-L-32A-10k , L1/L2/L3, 4mm safety banana jack, 10 kHz – 230 MHz
Art.-No.: M3/32-HV	CDN-M3-32A-HV , 4mm safety banana jack, 150 kHz – 80 MHz
Art.-No.:	CDN-M3-L-32A-HV , 4mm safety banana jack, 150 kHz – 80 MHz
Art.-No.: M3/63-HV	CDN-M3-63A-HV , 6mm round connector, 150 kHz – 80 MHz
Art.-No.: M3/100-HV	CDN-M3-100A-HV , 6mm round connector, 150 kHz – 80 MHz
Art.-No.: KAL-AD/M1-M2-M3	Calibration adapter, CDN-M1 / -M2 / -M3
Art.-No.: KAL-HC/M2-M3-63A	Calibration adapter, CDN-M2-63A / -M3-63A
Art.-No.: KAL-HC/M2-M3-100A	Calibration adapter, CDN-M2-100A / -M3-100
Art.-No.: M4	CDN-M4 , 4mm safety banana jack, 150 kHz – 230 MHz
Art.-No.: M4-LN	CDN-M4-N , L1/L2/L3/N, 4mm safety banana jack, 150 kHz – 230 MHz
Art.-No.: M4/32	CDN-M4-32A , 4mm safety banana jack, 150 kHz – 230 MHz
Art.-No.: M4/32-LN	CDN-M4-N-32A , L1/L2/L3/N, 4mm safety banana jack, 150 kHz – 230 MHz
Art.-No.: M4/32-N	CDN-M4-32A-10k , 4mm safety banana jack, 10 kHz – 230 MHz
Art.-No.: M4/32-HV	CDN-M4-32A-HV , 4mm safety banana jack, 150 kHz – 80 MHz
Art.-No.:	CDN-M4-N-32A-HV , 4mm safety banana jack, 150 kHz – 80 MHz
Art.-No.: M4/63-HV	CDN-M4-63A-HV , 6mm round connector, 150 kHz – 80 MHz
Art.-No.: M4/63-LN-HV	CDN-M4-N-63A-HV , L1/L2/L3/N, 6mm round connector, 150 kHz – 80 MHz
Art.-No.: M4/100-HV	CDN-M4-100A-HV , 6mm round connector, 150 kHz – 80 MHz
Art.-No.: M4/100-LN-HV	CDN-M4-N-100A-HV , L1/L2/L3/N, 6mm round connector, 150 kHz – 80 MHz
Art.-No.: M5	CDN-M5 , 4mm safety banana jack, 150 kHz – 230 MHz
Art.-No.: M5/32	CDN-M5-32A , 4mm safety banana jack, 150 kHz – 230 MHz
Art.-No.: M5/32-HV	CDN-M5-32A-HV , 4mm safety banana jack, 150 kHz – 80 MHz
Art.-No.: M5/32-VHV	CDN-M5-32A-VHV , 4mm safety banana jack, 150 kHz – 80 MHz
Art.-No.: M5/63-HV	CDN-M5-63A-HV , 6mm round connector, 150 kHz – 80 MHz
Art.-No.: M5/100-HV	CDN-M5-100A-HV , 6mm round connector, 150 kHz – 80 MHz
Art.-No.: KAL-AD/M4-M5	Calibration adapter, CDN-M4 / -M5
Art.-No.:	Calibration adapter "Delta", CDN-M4 / -M5
Art.-No.: KAL-HC/M4-M5-63A	Calibration adapter, CDN-M4-63A / -M5-63A
Art.-No.: KAL-HC/M4-M5-100A	Calibration adapter, CDN-M4-100A / -M5-100A
Art.-No.: KAL-ANG	Mounting bracket for calibration adapter incl. 50/150 Ohm adapter and 50 Ohm termination
Custom design solutions are always available on request!	

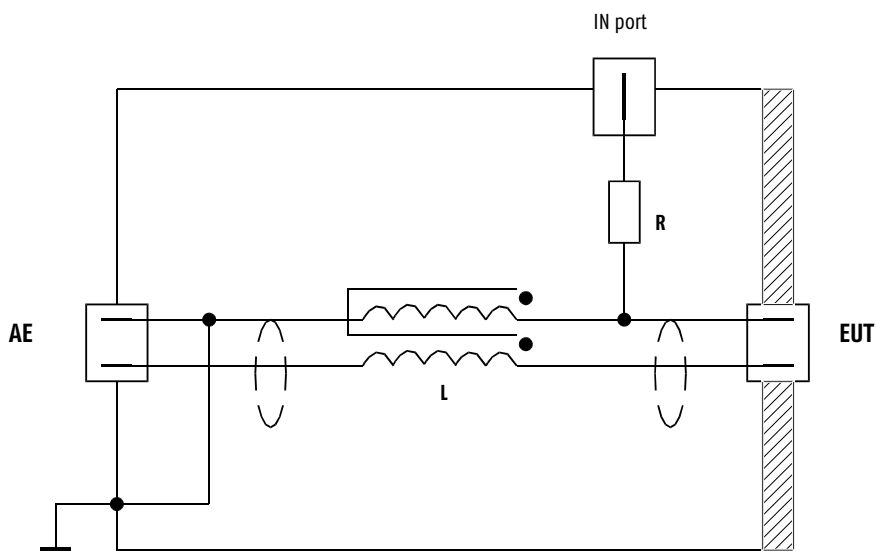


CDN-S1 / -S2 / -S4 / -S8 / -S9 / -S15 / -S25 CDN-RJ45-S / -USB-C / -USB-P / -USB-3.0 CDN-Firewire / -HDMI



Description

For coupling and decoupling of interference signals on screened lines CDN S-Types are used. Despite the variety of connectors the interference signal is in all cases coupled to the cable shield via a 100 Ω resistor. A device for direct coupling is also available (without decoupling network).



Simplified diagram for the circuit of CDN-S1



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Type	CDN-S1	CDN-S2	CDN-S4	CDN-S8	CDN-S9	CDN-S15	CDN-S25
RF In							
Frequency range (RF In)	150 kHz – 230 MHz						
Power Rating (RF In)	6 W (continuous)						
Decoupling attenuation (RF In – AE)	9.35 dB (150 kHz – 80 MHz) 9.30 dB (80 MHz – 230 MHz)						
Insertion loss (RF In – EUT)	10 dB ± 1 dB (150 kHz – 80 MHz); 10 dB + 3 dB (80 MHz – 230 MHz)						
Connector	BNC						
EUT / AE							
Maximum Input Voltage AC	150 V						
Maximum Input Voltage DC	200 V						
Current Rating (AE – EUT)	1.5 A						
Insertion loss (AE – EUT)	< 1dB (0 – 10 MHz) < 10 dB (10 MHz – 500 MHz)						
Connectors	BNC	XLR	5-pin XLR	8-pin Mini-DIN	9-pin Sub-D	15-pin Sub-D	25-pin Sub-D
Mechanical Data							
Dimensions (W x H x D)	160mm x 84.5mm x 240 mm						



Type RF In	USB-C	USB-P	HDMI	Firewire	USB-3.0	RJ45-S
Frequency range (RF In)	(10 kHz) 150 kHz – 230 MHz					
Power Rating (RF In)	6 W (continuous)					
Insertion loss (RF In – AE)	9.50 dB (150 kHz – 80 MHz) 9.25 dB (80 MHz – 230 MHz)			9.30 dB (150 kHz – 230 MHz)		
Insertion loss (RF In – EUT)	10 dB ± 1 dB (150 kHz – 80 MHz) 10 dB + 3 dB (80 MHz – 230 MHz)			10 dB ± 1 dB (150 kHz – 80 MHz) 10 dB + 3 dB (80 MHz – 230 MHz)		
Connector	BNC					
EUT / AE						
Maximum Input Voltage AC	100 V					
Maximum Input Voltage DC	150 V					
Current Rating (AE – EUT)	0.5 A			0.9 A		1.0 A
Insertion loss (AE – EUT)	< 1dB (DC – 10 MHz) < 10 dB (10 MHz – 500 MHz)			< 0.3 dB (DC – 10 MHz) < 1 dB (10 MHz – 100 MHz) < 3 dB (100 MHz – 500 MHz)		
Connectors	EUT: USB-B AE: USB-A	EUT: USB-A AE: USB-B	HDMI 19-pol	Firewire 6-pol	USB-3.0	Shielded RJ45 jack
Mechanical Data						
Dimensions (W x H x D)	160mm x 84.5mm x 240 mm					

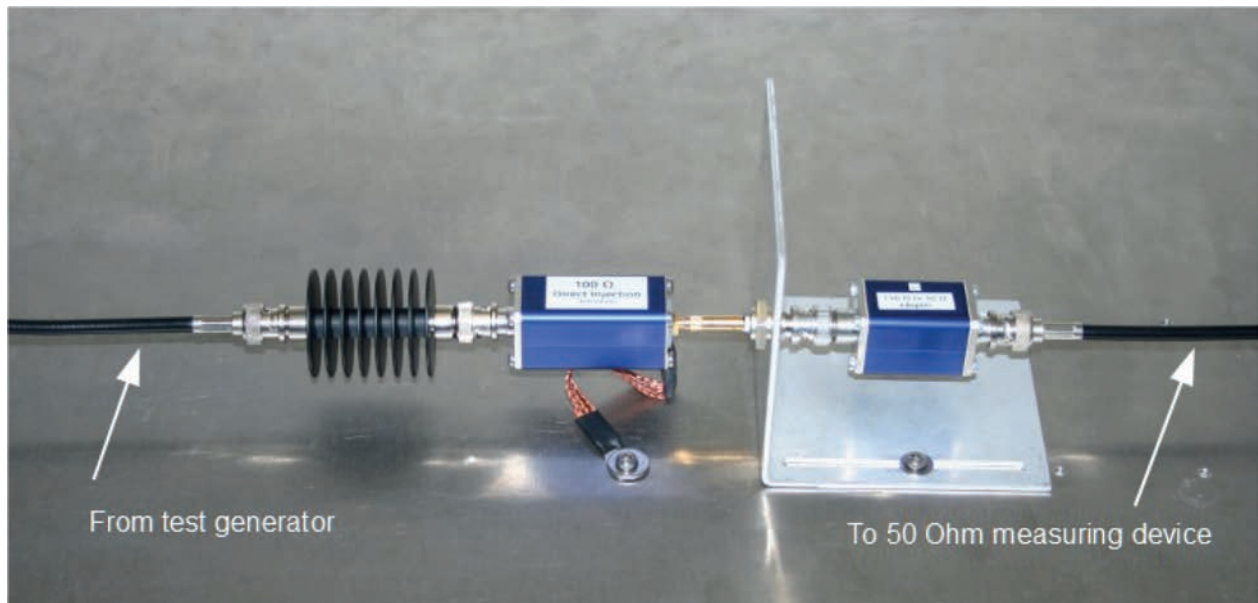
Direct injection device

100 Ω connector for RF disturbances 150 kHz – 230 MHz



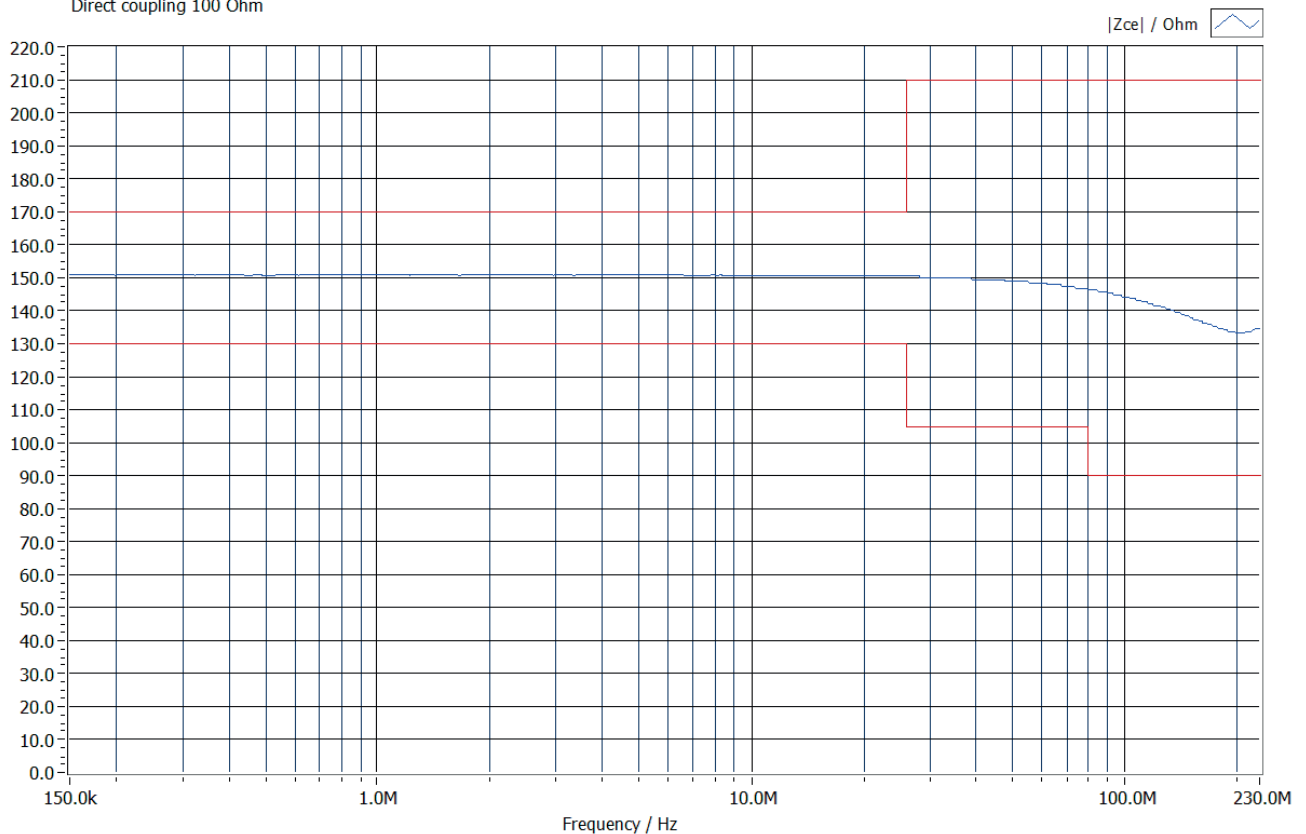
The disturbing signal coming from the test generator is injected on to screened and coaxial cables via a 100 Ω resistor (even if the shield is ungrounded or grounded at one end only). In between the auxiliary equipment (AE) and the injection point, a decoupling circuit shall be inserted as close as possible to the injection point. To increase decoupling and to stabilize the circuit, a ground connection shall be made from the screen of the direct injection device's input port to the ground reference plane.

Electrical Data	
Frequency range (RF In)	150 kHz – 230 MHz
Common mode impedance (IN/OUT)	100 Ω
Power Rating (RF In)	6 W (continuous)
Connector Out	Alligator clip; max. cable diameter 30 mm
Connector In	BNC



Setting of the output level

Network Analyser HP8751A (S.-No.: 3315J01756), Test Set 87512A (S.-No. MY43100614)
 Common mode impedance, measurement method acc. IEC/EN61000-4-6
 Direct coupling 100 Ohm



Typical common mode impedance



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Art.-No.: S1	CDN-S1 , BNC, 150 kHz – 230 MHz
Art.-No.:	CDN-S1-10k , BNC, 10 kHz – 230 MHz
Art.-No.: S1/75	CDN-S1-75Ω , BNC, 150 kHz – 230 MHz
Art.-No.: KAL-AD/S1	Calibration adapter, CDN-S1
Art.-No.: S2	CDN-S2 , XLR, 150 kHz – 230 MHz
Art.-No.:	CDN-S2-10k , XLR, 10 kHz – 230 MHz
Art.-No.: KAL-AD/S2	Calibration adapter, CDN-S2
Art.-No.:	CDN-S3-10k , XLR, 10 kHz – 230 MHz
Art.-No.:	Calibration adapter, CDN-S3
Art.-No.: S4	CDN-S4 , 5-pin XLR, 150 kHz – 230 MHz
Art.-No.: KAL-AD/S4	Calibration adapter, CDN-S4
Art.-No.: S8	CDN-S8 , 8-pin Mini-DIN, 150 kHz – 230 MHz
Art.-No.: KAL-AD/S8	Calibration adapter, CDN-S8
Art.-No.: S9	CDN-S9 , 9-pin Sub-D, 150 kHz – 230 MHz
Art.-No.: S9-N	CDN-S9-10k , 9-pin Sub-D, 10 kHz – 230 MHz
Art.-No.: KAL-AD/S9	Calibration adapter, CDN-S9
Art.-No.: S15	CDN-S15 , 15-pin Sub-D, 150 kHz – 230 MHz
Art.-No.: KAL-AD/S15	Calibration adapter, CDN-S15
Art.-No.: S25	CDN-S25 , 25-pin Sub-D, 150 kHz – 230 MHz
Art.-No.: KAL-AD/S25	Calibration adapter, CDN-S25
Art.-No.: USB-C	CDN-USB-C , EUT: USB-B, AE: USB-A, 150 kHz – 230 MHz
Art.-No.: USB-C-N	CDN-USB-C-10k , EUT: USB-B, AE: USB-A, 10 kHz – 230 MHz
Art.-No.: KAL-AD/USB-C	Calibration adapter, CDN-USB-C
Art.-No.: USB-P	CDN-USB-P , EUT: USB-A, AE: USB-B, 150 kHz – 230 MHz
Art.-No.: USB-P-N	CDN-USB-P-10k , EUT: USB-A, AE: USB-B, 10 kHz – 230 MHz
Art.-No.: KAL-AD/USB-P/3.0	Calibration adapter, CDN-USB-P, as well for USB-3.0
Art.-No.: USB-3.0	CDN-USB-3.0 , EUT: USB-A, AE: USB-A, 150 kHz – 230 MHz
Art.-No.: RJ45-S	CDN-RJ45-S , shielded RJ45, 150 kHz – 230 MHz
Art.-No.: RJ45-S-N	CDN-RJ45-S-10k , shielded RJ45, 10 kHz – 230 MHz
Art.-No.: KAL-AD/RJ45-S	Calibration adapter, CDN-RJ45-S
Art.-No.: FIREWIRE	CDN-Firewire , 6 pole IEEE 1394 receptacle, 150 kHz – 230 MHz
Art.-No.: KAL-AD/FIREWIRE	Calibration adapter, CDN-Firewire
Art.-No.: HDMI	CDN-HDMI , 19-pole HDMI 1.3 receptacle, 150 kHz – 230 MHz
Art.-No.: KAL-AD/HDMI	Calibration adapter, CDN-HDMI
Art.-No.: KAL-ANG	Mounting bracket for calibration adapter incl. 50/150 Ohm adapter and 50 Ohm termination
Art.-No.: S-DIR	Device for direct injection; 100 Ohm; alligator clip; calibration adapter included

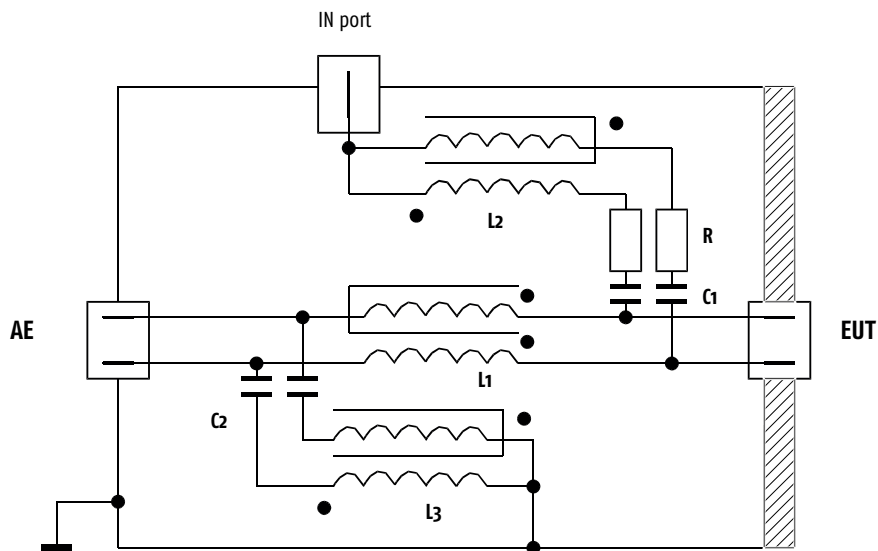


CDN-T2 / -T4 / -T8 / -RJ11 / -RJ45



Description

For coupling and decoupling disturbing signals to an unscreened cable with balanced lines, T-type CDNs shall be used.



Simplified diagram for the circuit of CDN-T2



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Type	CDN-T2/4/8	CDN-RJ11/RJ45
RF In		
Frequency range (RF In)	(10 kHz) 150 kHz – 80 MHz / 230 MHz	
Power Rating (RF In)	6 W (continuous)	
Decoupling attenuation (RF In – AE)	9 20 dB (150 kHz – 230 MHz)	
Insertion loss (RF In – EUT)	10 dB $\pm$ 1 dB (150 kHz – 230 MHz)	10 dB $\pm$ 1 dB (150 kHz – 80 MHz) 10 dB + 3 dB (80 MHz – 230 MHz)
Connector	BNC	
EUT / AE		
Maximum Input Voltage AC	100 V	
Maximum Input Voltage DC	150 V	
Current Rating (AE – EUT)	0.5 A	1.5 A
Insertion loss (AE – EUT)	< 1 dB (DC – 1 MHz) < 10 dB (1 MHz – 100 MHz)	< 1 dB (DC – 10 MHz) < 10 dB (10 MHz – 100 MHz)
Connectors	Terminal block	RJ11 / RJ45 jack
Mechanical Data		
Dimensions (W x H x D)	160mm x 84.5mm x 240 mm	

Ordering Information	
Art.-No.: T2	CDN-T2 , terminal block 2 pole, 150 kHz – 230 MHz
Art.-No.: T2-N	CDN-T2-10k , terminal block 2 pole, 10 kHz – 80 MHz
Art.-No.: KAL-AD/AF2-T2	Calibration adapter, CDN-T2 / -AF2
Art.-No.: T4	CDN-T4 , terminal block 4 pole, 150 kHz – 230 MHz
Art.-No.: T4-N	CDN-T4-10k , terminal block 2 pole, 10 kHz – 80 MHz
Art.-No.: KAL-AD/AF4-T4	Calibration adapter, CDN-T4 / -AF4
Art.-No.: T8	CDN-T8 , RJ45 jack 8 pole, 150 kHz – 230 MHz
Art.-No.: RJ11	CDN-RJ11 , RJ11 jack, 150 kHz – 230 MHz
Art.-No.: KAL-AD/RJ11	Calibration adapter, CDN-RJ11
Art.-No.: RJ45	CDN-RJ45 , RJ45 jack, 150 kHz – 230 MHz
Art.-No.: KAL-AD/RJ45	Calibration adapter, CDN-RJ45 / -T8
Art.-No.: KAL-ANG	Mounting bracket for calibration adapter incl. 50/150 Ohm adapter and 50 Ohm termination
Custom design solutions are always available on request!	



Type		
RF In	CDN-CAN-L5	CDN-CAN-L4
Frequency range (RF In)	150 kHz – 230 MHz	
Power Rating (RF In)	6 W (continuous)	
Decoupling attenuation (RF In – AE)	PIN 2+7: > 35 dB (150 kHz – 230 MHz) PIN 3+6+9: > 35 dB (150 kHz – 200 MHz); 9 25 dB (200 MHz – 230 MHz)	PIN 2+7: > 35 dB (150 kHz – 230 MHz) PIN 3+9: > 35 dB (150 kHz – 200 MHz); 9 25 dB (200 MHz – 230 MHz)
Insertion loss (RF In – EUT)	10 dB ± 1 dB (150 kHz – 230 MHz)	
Connector	BNC	
EUT / AE		
Maximum Input Voltage AC	50 V	
Maximum Input Voltage DC	50 V	
Current Rating (AE – EUT)	PIN 2+7 = 0.5 A; PIN 3+6+9 = 3 A	PIN 2+7 = 0.5 A; PIN 3+9 = 3 A
Insertion loss (AE – EUT)	PIN 2+7: < 1 dB (DC – 10 MHz); < 10 dB (10 MHz – 500 MHz) PIN 3+6+9: < 1 dB (DC – 100 kHz)	PIN 2+7: < 1 dB (DC – 10 MHz); < 10 dB (10 MHz – 500 MHz) PIN 3+9: < 1 dB (DC – 100 kHz)
Connectors	9-pol SUB-D socket	
Mechanical Data		
Dimensions (W x H x D)	160mm x 84.5mm x 240 mm	

Ordering Information	
Art.-No.:	CDN-CAN-L5 , 9-pol Sub-D socket, 150 kHz – 230 MHz
Art.-No.:	Calibration adapter, CDN-AF8-Sub-D, CDN-CAN-L5
Art.-No.:	CDN-CAN-L4 , 9-pol Sub-D socket, 150 kHz – 230 MHz
	Custom design solutions are always available on request!



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