

Data sheets

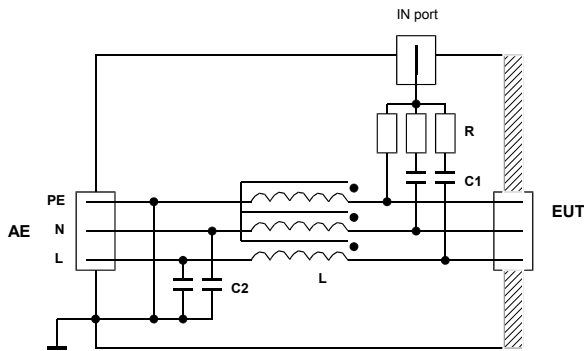
CDN-M, CDN-AF, CDN-S, CDN-T, CDN-RJ, CDN-USB

Coupling and decoupling devices (CDN) for immunity tests according to EN 61000-4-6 / IEC 61000-4-6



Typ	Interconnected lines
M1, M2, M3, M4, M5, M2+M3	Unscreened supply (mains)
AF2, AF4, AF6, AF8	Unscreened nonbalanced lines
S1, S2, S9, S25	Screened lines
T2, T4, T8	Unscreened balanced lines
RJ11, RJ45	Unscreened data lines
RJ11/S, RJ45/S, USB	Screened data lines

CDN M1, M2, M3, M4, M5, M2/3



Simplified diagram of M3 network

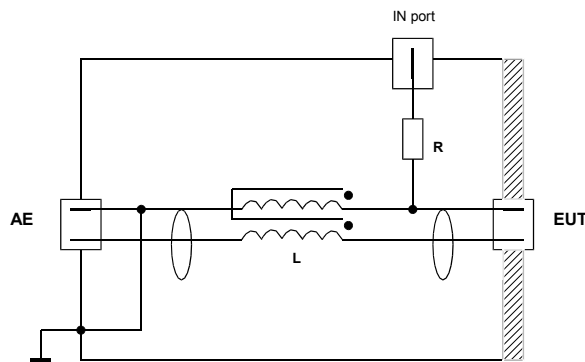
Coupling- /decoupling networks (CDN) for immunity tests to conducted disturbances induced by radio frequency fields according to
EN 61000-4-6 / IEC 61000-4-6

CDN M-Types

- ⌘ **CDN M-types used with unscreened supply (mains) lines**
- ⌘ **CDN M2/3 is switchable for use as M2 or as M3**
- ⌘ **Versions for higher current ratings up to 80 A are available on request**

<i>Specifications</i>		
EUT / AE port	AC voltage:	250 V _{eff}
	DC voltage:	400 V
	Current rating:	16 A (optional up to 80 A) (except M2/3 I _{PE} < 0,5 A)
	Connectors:	4 mm Safety Banana Jacks (6 mm round connectors for current ratings > 32 A)
HF in	Frequency range:	150 kHz - 230 MHz
	Connector:	BNC, 50 Ω
	Continuous RF power:	6 W
Common mode impedance	150 kHz - 26 MHz:	130 - 170 Ω
	26 MHz - 230 MHz:	105 - 210 Ω
Voltage attenuation Generator / EUT (AE-port open/short)	150 kHz - 80 MHz:	a = 10 dB ± 1 dB
	80 MHz - 230 MHz:	a = 10 dB + 2 dB
Decoupling attenuation Generator / AE (EUT-port = 150 Ω)	150 kHz - 1 MHz:	a > 50 dB
	1 MHz - 80 MHz:	(except M2, M2/3 as M2: a > 40 dB)
	80 MHz - 230 MHz:	a > 40 dB a > 25 dB
Insertion loss EUT/AE (50 Ω-System)	f < 1 kHz:	a < 0,1 dB

CDN S1, S2, S9, S25



Simplified diagram of S1 network

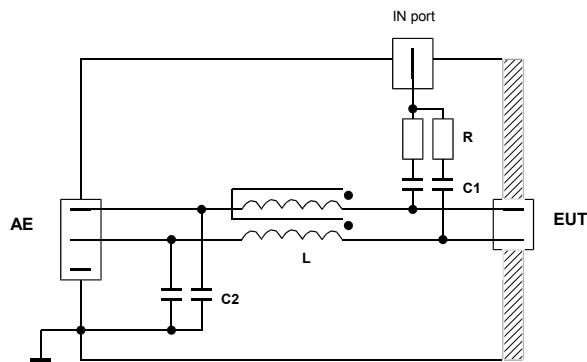
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CDN S-Types

- ⌘ CDN S-types used with screened lines
- ⌘ Available for 50 Ω or 75 Ω lines

Specifications		S1	S2	S9	S25
EUT / AE port	AC voltage:	250 V _{eff}			
	DC voltage:	400 V			
	Current rating:	0,5 A _{eff}			
	Connectors:	BNC	XLR	Sub-D	Sub-D
HF in	Frequency range:	150 kHz - 230 MHz			
	Connector:	BNC, 50 Ω			
	Continuous RF power:	6 W			
Common mode impedance	150 kHz - 26 MHz:	130 - 170 Ω			
	26 MHz - 230 MHz:	105 - 210 Ω			
Voltage attenuation Generator / EUT (AE port open/short)	150 kHz - 80 MHz:	10 dB ± 1 dB	10 dB ± 1 dB	10 dB ± 1 dB	10 dB ± 1 dB
	80 MHz - 230 MHz:	10 dB ± 1 dB	10 dB ± 1 dB	10 dB + 2 dB	10 dB + 2 dB
Decoupling attenuation Generator / AE (EUT port = 150 Ω)	150 kHz - 1 MHz:	> 55 dB			
	1 MHz - 80 MHz:	> 55 dB			
	80 MHz - 230 MHz:	> 35 dB			
Insertion loss EUT/AE (50 Ω-System)	DC - 10 MHz:	< 0,2 dB	< 0,5 dB	< 0,3 dB	< 0,3 dB
	10 MHz - 100 MHz:	< 0,5 dB	< 3 dB	< 3 dB	< 3 dB
	100 MHz - 500 MHz:	< 3 dB	---	< 10 dB	< 10 dB

CDN AF2, AF4, AF6, AF8



Simplified diagram of AF2 network

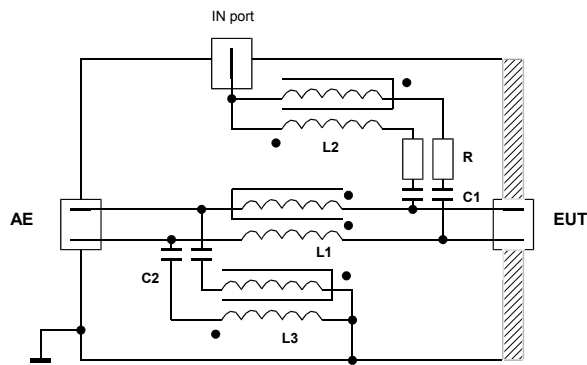
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CDN AF-Types

⚡ CDN AF-types used with unshielded nonbalanced lines

<i>Specifications</i>		
EUT / AE port	AC voltage:	40 V _{eff}
	DC voltage:	50 V
	Current rating:	0,5 A _{eff}
	Connectors:	Clamp terminal
HF in	Frequency range:	150 kHz - 230 MHz
	Connector:	BNC, 50 Ω
	Continuous RF power:	6 W
Common mode impedance	150 kHz - 26 MHz:	130 - 170 Ω
	26 MHz - 230 MHz:	105 - 210 Ω
Voltage attenuation Generator / EUT (AE-port open/short)	150 kHz - 230 MHz:	a = 10 dB ± 1 dB
Decoupling attenuation Generator / AE (EUT-port = 150 Ω)	150 kHz - 1 MHz:	a > 40 dB
	1 MHz - 80 MHz:	a > 55 dB
	80 MHz - 230 MHz:	a > 40 dB
Insertion loss EUT/AE (50 Ω-System)	DC - 100 kHz:	a < 1 dB
	100 kHz - 1 MHz:	a < 10 dB

CDN T2, T4, T8



Simplified diagram of T2 network

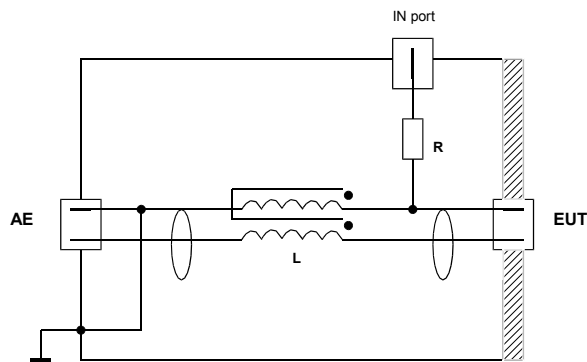
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CDN T-Types

🔗 CDN T-types used with unshielded balanced lines

Specifications		
EUT / AE port	AC voltage:	150 V _{eff}
	DC voltage:	200 V
	Current rating:	0,5 A _{eff}
	Connectors:	Clamp terminal
HF in	Frequency range:	150 kHz - 230 MHz (T4: 150 kHz – 80 MHz)
	Connector:	BNC, 50 Ω
	Continuous RF power:	6 W
Common mode impedance	150 kHz - 26 MHz:	130 - 170 Ω
	26 MHz - 230 MHz:	105 - 210 Ω
Voltage attenuation Generator / EUT (AE-port open/short)	150 kHz - 80 MHz:	a = 10 dB ± 1 dB
	80 MHz - 230 MHz:	a = 10 dB + 2 dB
Decoupling attenuation Generator / AE (EUT-port = 150 Ω)	150 kHz - 80 MHz:	a > 35 dB
	80 MHz - 230 MHz:	a > 30 dB
Insertion loss EUT/AE (50 Ω-System)	DC - 100 kHz:	a < 1 dB
	100 kHz - 1 MHz:	a < 10 dB

CDN RJ11/S, RJ45/S, USB-C, USB-P



Simplified diagram of S1 network

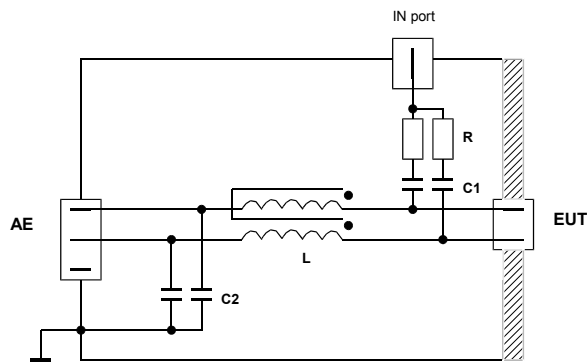
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CDN RJ/USB-Types

CDN RJ/USB-types used with screened data lines

Specifications		RJ11/S	RJ45/S	USB-C	USB-P
EUT / AE port	AC voltage:	250 V _{eff}			
	DC voltage:	400 V			
	Current rating:	0,5 A _{eff}			
Connectors (EUT):		RJ11	RJ45	USB-B	USB-A
	Connectors (AE):	RJ11	RJ45	USB-A	USB-B
HF in	Frequency range:	150 kHz - 230 MHz			
	Connector:	BNC, 50 Ω			
	Continuous RF power:	6 W			
Common mode impedance	150 kHz - 26 MHz:	130 - 170 Ω			
	26 MHz - 230 MHz:	105 - 210 Ω			
Voltage attenuation Generator / EUT (AE port open/short)	150 kHz - 80 MHz:	10 dB ± 1 dB			
	80 MHz - 230 MHz:	10 dB + 2 dB			
Decoupling attenuation Generator / AE (EUT port = 150 Ω)	150 kHz - 1 MHz:	> 55 dB			
	1 MHz - 80 MHz:	> 55 dB			
	80 MHz - 230 MHz:	> 35 dB			
Insertion loss EUT/AE (50 Ω-System)	DC - 10 MHz:	< 0,3 dB			
	10 MHz - 100 MHz:	< 3 dB			
	100 MHz - 500 MHz:	< 10 dB			

CDN RJ11, RJ45



Simplified diagram of AF2 network

Coupling- /decoupling networks (CDN) for immunity tests to conducted disturbances induced by radio frequency fields according to
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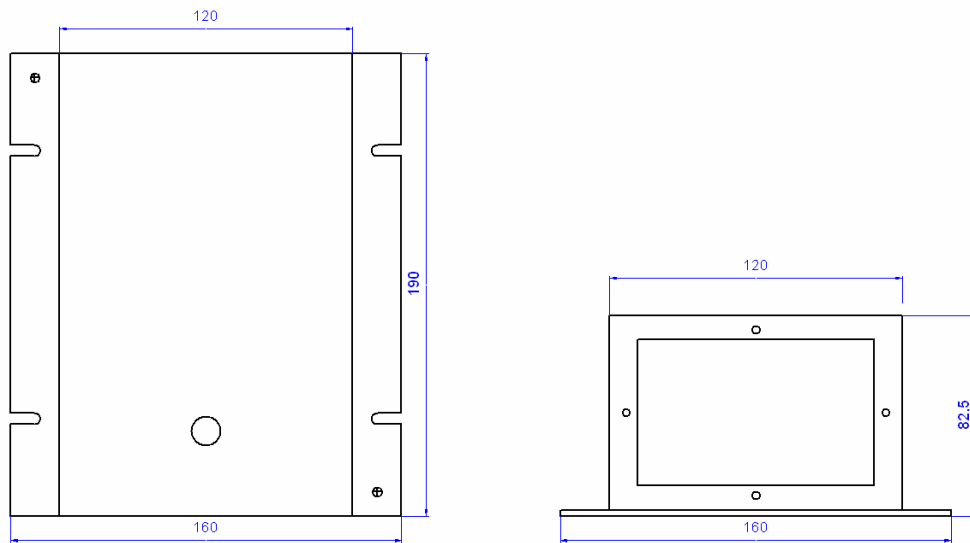
CDN RJ-Types

🔗 CDN RJ-types used with unshielded data lines

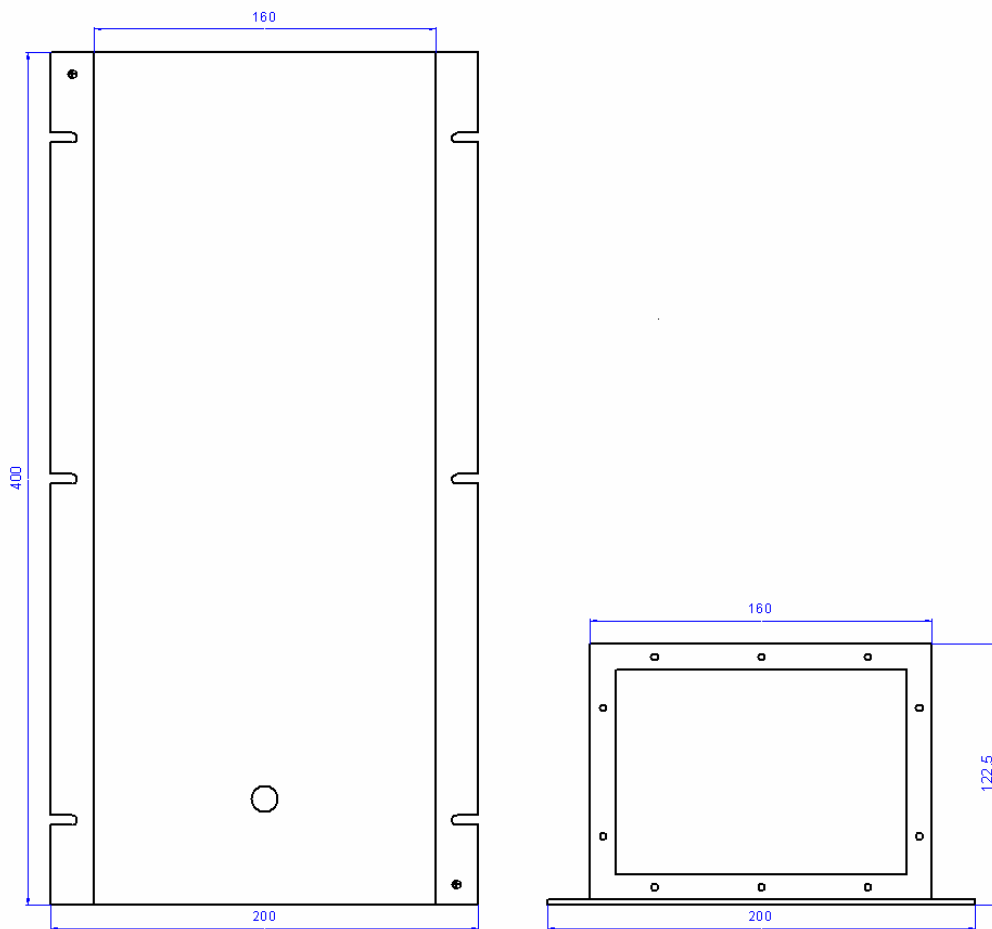
Specifications		
EUT / AE port	AC voltage:	40 V _{eff}
	DC voltage:	50 V
	Current rating:	0,5 A _{eff}
	Connectors:	Clamp terminal
HF in	Frequency range:	150 kHz - 230 MHz
	Connector:	BNC, 50 Ω
	Continuous RF power:	6 W
Common mode impedance	150 kHz - 26 MHz:	130 - 170 Ω
	26 MHz - 230 MHz:	105 - 210 Ω
Voltage attenuation Generator / EUT (AE-port open/short)	150 kHz - 230 MHz:	a = 10 dB ± 1 dB
Decoupling attenuation Generator / AE (EUT-port = 150 Ω)	150 kHz - 1 MHz:	a > 40 dB
	1 MHz - 80 MHz:	a > 55 dB
	80 MHz - 230 MHz:	a > 40 dB
Insertion loss EUT/AE (50 Ω-System)	DC - 10 MHz:	a < 1 dB
	10 MHz - 100 MHz:	a < 3 dB
	100 MHz - 1 GHz:	a < 10 dB

Dimensions [mm]

All models except M-types > 32 A



M-types > 32 A only

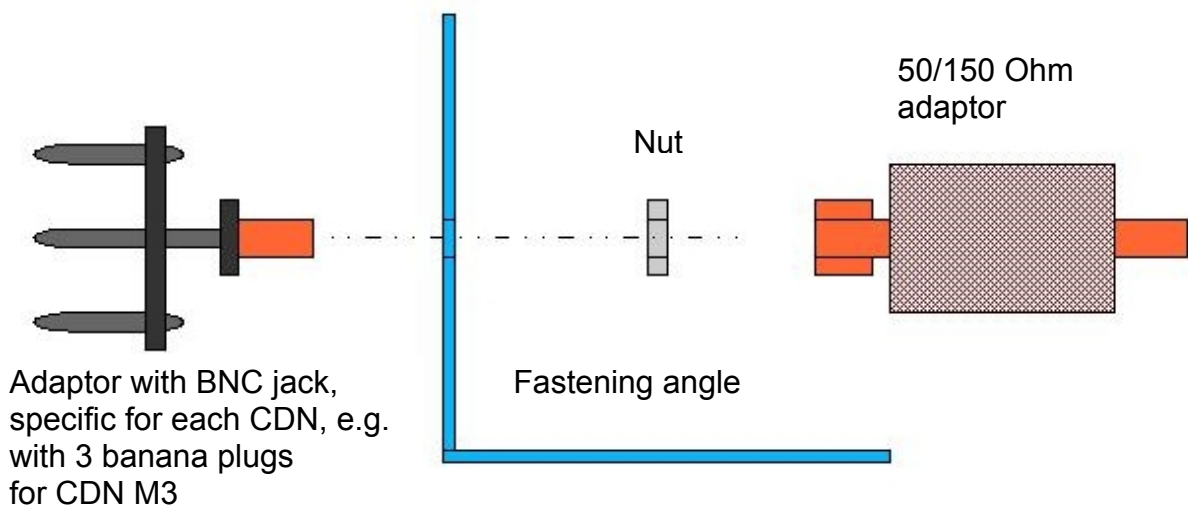


Calibration set for CDN

To calibrate a CDN the following items are required:

1x CDG A 3100 (consists of **Fastening angle** + **50/150 Ohm adaptor**)

1x CDG A 31xx (**Adaptor**, specific for each CDN)



CDG A 3100	Mounting plate include 50/150 Ohm passage
CDG A 3101	Calibration adaptor for CDN 801-M1, -M2, -M3
CDG A 3102	Calibration adaptor for CDN 801-AF2
CDG A 3103	Calibration adaptor for CDN 801-S1
CDG A 3104	Calibration adaptor for CDN 801-S2
CDG A 3105	Calibration adaptor for CDN 801-S9
CDG A 3106	Calibration adaptor for CDN 801-S25
CDG A 3107	Calibration adaptor for CDN 801-M5, M4 – 16A
CDG A 3108	Calibration adaptor for CDN 801-AF2, AF3, AF4
CDG A 3109	Calibration adaptor for CDN 801-M5 - 32A
CDG A 3110	Calibration adaptor for CDN 801-AF8
CDG A 3111	Calibration adaptor for CDN 801-T2
CDG A 3112	Calibration adaptor for CDN 801-T4
CDG A 3115	Calibration adaptor for CDN 801-M4 – 63A/80A

Alu Mounting plate (thick 2.5 mm; yellow chromates)

