



CDN AF SERIES COUPLING / DECOUPLING NETWORK (CDN) CDN AF TYPE, CDN CAN



CDN A201

- Coupling networks designed for IEC / EN 61000-4-6
- Used for unshielded, unbalanced lines
- Models with 4 mm banana sockets or D-Sub 25 pins
- Models with frequency range 10 kHz to 80 MHz, 150 kHz to 230 MHz or up to 300 MHz

IEC / EN 61000-4-6 specifies the design and performance of a range of coupling/decoupling networks (CDNs). Each CDN is specific to the type of cable and the intended signal carried on the cable. Teseq offers an extensive range of CDNs which fully comply with the requirements of the standard and provide a simple and reliable method of injecting RF energy into the equipment under test (EUT).

Product range 10 kHz to 80 MHz

CDN type	Product name	Line type	Application	Connector EUT port	Connector AE port
AF2	CDN A201-10	2 lines	2 lines application	4 mm banana	4 mm banana
AF3	CDN A301-10	3 lines	3 lines application	4 mm banana	4 mm banana
AF4	CDN A401-10	4 lines	4 lines application	4 mm banana	4 mm banana
AF5	CDN A501-10	5 lines	5 lines application	4 mm banana	4 mm banana
AF8	CDN A800-10	8 lines	8 lines application	D-Sub 25 pins (Pin 1 to 8)	D-Sub 25 pins (Pin 1 to 8)
AF8	CDN A801-10	8 lines	8 lines application	4 mm banana	4 mm banana

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Product range 150 kHz to 230 (300) MHz

CDN type	Product name	Line type	Application	Connector EUT port	Connector AE port
AF2	CDN A201	2 lines	2 lines application	4 mm banana	4 mm banana
AF3	CDN A301	3 lines	3 lines application	4 mm banana	4 mm banana
AF4	CDN A401	4 lines	4 lines application	4 mm banana	4 mm banana
AF5	CDN A501	5 lines	5 lines application	4 mm banana	4 mm banana
AF7	CDN A701	7 lines	7 lines application	4 mm banana	4 mm banana
AF8	CDN A800	8 lines	8 lines application	D-Sub 25 pins (Pin 1 to 8)	D-Sub 25 pins (Pin 1 to 8)
AF8	CDN A801	8 lines	8 lines application	4 mm banana	4 mm banana
AF12	CDN A120	12 lines	12 lines application	D-Sub 25 pins (Pin 1 to 12)	D-Sub 25 pins (Pin 1 to 12)
AF15	CDN A150	15 lines	15 lines application	D-Sub 25 pins (Pin 1 to 15)	D-Sub 25 pins (Pin 1 to 15)

Product range CDN CAN

CDN type	Product name	Line type	Application	Connector EUT port	Connector AE port
CAN	CDN CAN-U4	4 lines	4 lines application for unscreened CAN bus	D-Sub 9 pins (Pin 2, 3, 7, 9)	D-Sub 9 pins (Pin 2, 3, 7, 9)
CAN	CDN CAN-U5	5 lines	5 lines application for unscreened CAN bus, additional ground line	D-Sub 9 pins (Pin 2, 3, 6, 7, 9)	D-Sub 9 pins (Pin 2, 3, 6, 7, 9)

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Electrical specification CDN A201-10, A301-10, A401-10, A501-10 and A801-10

Frequency range:	10 kHz to 80 MHz
Line parameters:	unscreened, unbalanced
Power rating (EUT- and AE port)	
AC max. voltage (line to ground):	160 V
DC max. voltage (line to ground):	250 V
Current max :	4 A ¹⁾ , CDN 801-10: 2 A
Test voltage:	400 V (CDN 501-10: 1500 V) DC, 2 sec
Common mode impedance (EUT port)	
10 kHz to 26 MHz:	150 Ω ±20 Ω
26 MHz to 80 MHz:	150 Ω +60 Ω/-45 Ω
Coupling path (In/Out port/EUT)	
Connection:	BNC 50 Ω
RF voltage:	<30 V
Voltage division factor (RF input to EUT port)	
10 kHz to 80 MHz:	10 dB ±1 dB
Transmission bandwidth (wanted signal) EUT/AE B3 dB:	> 20 kHz sin.
Decoupling of CM disturbance (RF port/AE)	
10 kHz:	>10 dB
150 kHz:	>35 dB
26 MHz:	>45 dB
80 MHz:	>25 dB

¹⁾ Valid for serial numbers ≥35781 for CDN A 201-10, ≥37165 for CDN A 301-10, ≥37165 for CDN A 401-10, all CDN A501-10, Products with serial numbers below are limited at 250 mA.

Electrical specification CDN A800-10

Frequency range:	10 kHz to 80 MHz
Line parameters:	unscreened, unbalanced
Power rating (EUT- and AE port)	
AC max. voltage (line to ground):	63 V
DC max. voltage (line to ground):	100 V
Current max :	200 mA
Test voltage:	250 V DC, 2 sec
Common mode impedance (EUT port)	
10 kHz to 26 MHz:	150 Ω ±20 Ω
26 MHz to 80 MHz:	150 Ω +60 Ω/-45 Ω

CDN AF SERIES

COUPLING / DECOUPLING NETWORK (CDN) CDN AF TYPE, CDN CAN

Electrical specification CDN A800-10 (continued)

Coupling path (In/Out port/EUT)	
Connection:	BNC 50 Ω
RF voltage:	<15 V
Voltage division factor (RF input to EUT port)	
10 kHz to 80 MHz:	10 dB \pm 1 dB
Transmission bandwidth (wanted signal) EUT/AE B3 dB:	
	> 20 kHz sin.
Decoupling of CM disturbance (RF port/AE)	
10 kHz / 150 kHz:	>10 dB / >35 dB
26 MHz / 80 MHz:	>45 dB / >25 dB

Electrical specification CDN A201, A301, A401, A501, A701 and A801

Frequency range:	150 kHz to 300 MHz ¹⁾
Line parameters:	unscreened, unbalanced
Power rating (EUT- and AE port)	
AC max. voltage (line to ground):	160 V
DC max. voltage (line to ground):	250 V
Current max:	4 A ²⁾ , 2 A for CDN A 701 and A801
Test voltage:	400 V DC, 2 sec
Common mode impedance (EUT port)	
150 kHz to 26 MHz:	150 Ω \pm 20 Ω
26 MHz to 230 MHz:	150 Ω +60 Ω / -45 Ω
230 MHz to 300 MHz ¹⁾ :	150 Ω +60 Ω / -60 Ω
Coupling path (In/Out port/EUT)	
Connection:	BNC 50 Ω
RF voltage:	<30 V
Voltage division factor (RF input to EUT port)	
150 kHz to 80 MHz:	9.5 dB \pm 1 dB, 10 dB \pm 1 dB for CDN A501, A701, A801
80 MHz to 300 MHz ¹⁾ :	9.5 dB +3 dB / -2 dB 10 dB +3 dB / -2 dB for CDN A501, A701, A801
Transmission bandwidth (wanted signal) EUT/AE B3 dB:	
	> 20 kHz sin.
Decoupling of CM disturbance (RF port/AE)	
150 kHz / 1.5 MHz:	>30 dB / >60 dB
30 MHz / 230 MHz:	>50 dB / >30 dB

¹⁾ The classification for the range 230 to 300 MHz can be selected as option (CDN A501 on request).

²⁾ Valid for serial numbers \geq 37155 for CDN A201, \geq 34693 for CDN A301, \geq 36962 for CDN A401, all CDN A501. Products with serial numbers below are limited at 250 mA.

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CDN AF TYPE, CDN CAN

Electrical specification CDN A800, A120 and A150

Frequency range:	150 kHz to 300 ¹⁾ MHz
Line parameters:	unscreened, unbalanced
Power rating (EUT- and AE port)	
AC max. voltage (line to ground):	63 V
DC max. voltage (line to ground):	100 V
Current max :	200 mA
Test voltage:	250 V DC, 2 sec
Common mode impedance (EUT port)	
150 kHz to 26 MHz:	150 Ω \pm 20 Ω
26 MHz to 230 MHz:	150 Ω +60 Ω / -45 Ω
230 MHz to 300 ¹⁾ MHz:	150 Ω +60 Ω / -60 Ω
Coupling path (In/Out port/EUT)	
Connection:	BNC 50 Ω
RF voltage:	<15 V
Voltage division factor (RF input to EUT port)	
150 kHz to 80 MHz:	9.5 dB \pm 1 dB
80 MHz to 300 ¹⁾ MHz:	9.5 dB +3 dB / -2 dB
Transmission bandwidth (wanted signal) EUT/AE B3 dB:	> 20 kHz sin.
Decoupling of CM disturbance (RF port/AE)	
150 kHz:	>30 dB
1.5 MHz:	>60 dB
30 MHz:	>50 dB
230 MHz:	>35 dB

¹⁾ The classification for the range 230 to 300 MHz can be selected as option.

CDN AF SERIES

COUPLING / DECOUPLING NETWORK (CDN)

CDN AF TYPE, CDN CAN

Electrical specification CDN CAN-U4 and CAN-U5

Frequency range:	150 kHz to 230 MHz
Line parameters:	CAN bus
Power rating (EUT- and AE Port)	
AC max. voltage:	48 V
DC max. voltage:	48 V
Current max :	3 A (pin 3 + 9, all other 0.5 A)
Test voltage:	200 VDC, 2 sec
Common mode impedance (EUT port)	
150 kHz to 26 MHz:	150 Ω \pm 20 Ω
26 MHz to 230 MHz:	150 Ω +60 Ω / -45 Ω
Coupling path (In/Out-port/EUT)	
Connection:	BNC 50 Ω
RF voltage:	<20 V
Voltage division factor (RF input to EUT port)	
150 kHz to 80 MHz:	9.5 dB \pm 1 dB
80 MHz to 230 MHz:	9.5 dB +3/ -2 dB
Transmission bandwidth EUT / AE B3 dB	
Symmetrical pair (pin 2 + 7):	>30 MHz sin.
all other lines:	>20 kHz sin.
Decoupling of CM disturbance (In-port / AE)	
150 kHz:	>30 dB
1.5 MHz:	>60 dB
30 MHz:	>50 dB
230 MHz:	<30 dB

Mechanical specification

Size (W x H x D):	100 mm x 100 mm x 240 mm
Weight:	approx. 1.5 kg

Environmental conditions

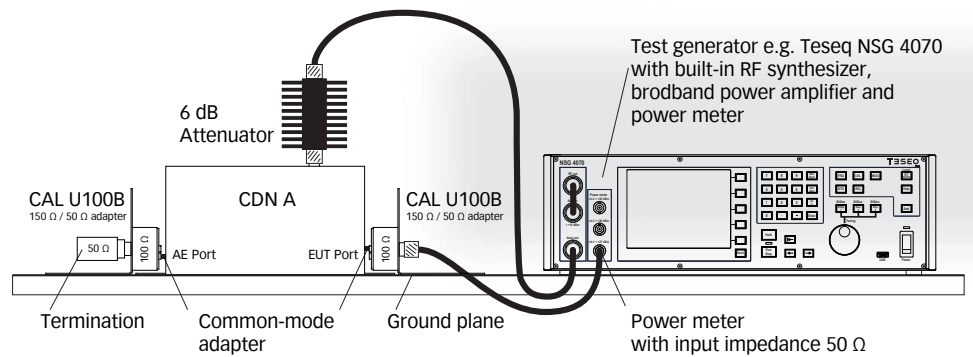
Classification:	Indoor use only
Operating temperature:	+5°C to +40 °C
Relative humidity:	up to 80%

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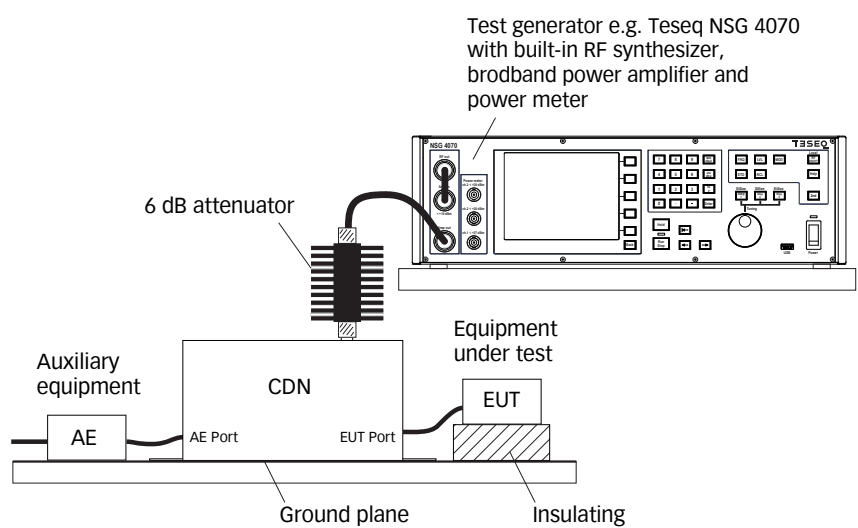
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Example of test set-up calibration



Example of EUT test set-up



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Model No. and options

Part number	Description
231016	CDN A201 CDN AF2, 230 (300) MHz (banana)
244121	CDN A201S CDN AF2, 230 (300) MHz (banana) with calibration adapter set in storage case
242481	CDN A201-10 CDN AF2, 10 kHz to 80 MHz (banana)
242487	CDN A201-10S CDN AF2, 10 kHz to 80 MHz (banana) with calibration adapter set in storage case
231017	CDN A301 CDN AF3, 230 (300) MHz (banana)
244122	CDN A301S CDN AF3, 230 (300) MHz (banana) with calibration adapter set in storage case
243773	CDN A301-10 CDN AF3, 10 kHz to 80 MHz (banana)
243774	CDN A301-10S CDN AF3, 10 kHz to 80 MHz (banana) with calibration adapter set in storage case
231018	CDN A401 CDN AF4, 230 (300) MHz (banana)
244123	CDN A401S CDN AF4, 230 (300) MHz (banana) with calibration adapter set in storage case
243775	CDN A401-10 CDN AF4, 10 kHz to 80 MHz (banana)
243776	CDN A401-10S CDN AF4, 10 kHz to 80 MHz (banana) with calibration adapter set in storage case
243950	CDN A501 CDN AF5, 230 MHz (banana)
243951	CDN A501S CDN AF5, 230 MHz (banana) with calibration adapter set in storage case
243865	CDN A501-10 CDN AF5, 10 kHz to 80 MHz (banana)

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CDN AF TYPE, CDN CAN

Model No. and options (continued)

Part number	Description
243866	CDN A501-10S CDN AF5, 10 kHz to 80 MHz (banana) with calibration adapter set in storage case
247868	CDN A701 CDN AF7, 230 (300) MHz (banana)
247869	CDN A701S CDN AF7, 230 (300) MHz (banana) with calibration adapter set in storage case
243010	CDN A800 CDN AF8, 230 (300) MHz with sub-D
244124	CDN A800S CDN AF8, 230 (300) MHz with sub-D with calibration adapter set in storage case
243014	CDN A800-10 CDN AF8, 10 kHz to 80 MHz with sub-D
243015	CDN A800-10S CDN AF8, 10 kHz to 80 MHz with sub-D with calibration adapter set in storage case
243036	CDN A801 CDN AF8, 230 (300) MHz (banana)
243037	CDN A801S CDN AF8, 230 (300) MHz (banana) with calibration adapter set in storage case
243018	CDN A801-10 CDN AF8, 10 kHz to 80 MHz (banana)
243957	CDN A801-10S CDN AF8, 10 kHz to 80 MHz (banana) with calibration adapter set in storage case
243005	CDN CAN-U4 CDN for CAN Bus, unscreened 4 lines
243001	CDN CAN-U4S CDN for CAN Bus, unscreened 4 lines with calibration adapter set in storage case
243006	CDN CAN-U5 CDN for CAN Bus, unscreened 5 lines
243002	CDN CAN-U5S CDN for CAN Bus, unscreened 5 lines with calibration adapter set in storage case

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CDN AF TYPE, CDN CAN

Model No. and options (continued)

Part number	Description
247870	CDN A120 CDN AF12, 230 MHz (D-sub)
247871	CDN A120S CDN AF12, 230 MHz (D-sub) with calibration adapter in storage case
243012	CDN A150 CDN AF15, 230 (300) MHz with sub-D
244126	CDN A150S CDN AF15, 230 (300) MHz with sub-D with calibration adapter set in storage case
97-231024	CDN-TC Traceable calibration (ISO17025) for IEC 61000-4-6 requirements, order only with device CDN M, AF or S type
97-237504	CDN CISPR15-TC Traceable calibration (ISO17025) for CISPR15 (300 MHz) and IEC 61000-4-6, order only with device CDN M or AF type
247825	CAL U100B Universal calibration unit (150 Ω / 50 Ω adapter)
239902	IMA U100 Universal impedance measuring adapter (0 Ω)
243050	SAR A250 Common mode adapter for CDN A150, A800
247829	SAR A71 Common mode adapter for CDN A701, 4 mm banana, consist of 2 parts for EUT and AE port
247834	SAR A81 Common mode adapter for CDN A801, 4 mm banana
243689	SAR CAN Common mode adapter for CDN CAN
239915	SAR M116 Adapter 4 mm banana
247827	SAR MA21 Common mode adapter for CDN A2, M2, 4 mm banana
247828	SAR MA31 Common mode adapter for CDN A3, M3, 4 mm banana
247831	SAR MA41 Common mode adapter for CDN A4, M4, 4 mm banana
243873	SAR MA51 Common mode adapter for CDN A5, M5, 4 mm banana

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