



CDN S SERIES COUPLING / DECOUPLING NETWORK (CDN) FOR SCREENED OR COAXIAL CABLES







CDN ST08A

- Coupling networks designed for IEC / EN 61000-4-6
- T series for unscreened balanced pairs
- 1 mm banana sockets for CDN T2-10 and CDN T4-10
- D Sub 25 adapters to RJ11 and RJ45 sockets for CDN T2xxA, CDN T4xxA and CDN T8 products

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
S1	CDN S501A-10	coaxial line	50 Ω coaxial line	BNC 50 Ω	BNC 50 Ω
USB	CDN USB/c-10	USB, screened	USB for central devices, USB up to 2.0	USB "B" type 	USB "A" type 
USB	CDN USB/p-10	USB, screened	USB for peripheral devices, USB up to 2.0	USB "A" type 	USB "B" type 
S8	CDN ST08-10	Telecommunication line, screened, up to 8 balanced lines (4 pairs)	up to 8 lines, e.g. Ethernet	RJ45	RJ45
S9	CDN S900-10	9 wires, screened	Data line up to 9 wires, RS232	D-Sub 9 pins	D-Sub 9 pins
S25	CDN S250-10	25 wires, screened	Data line up to 25 wires	D-Sub 25 pins	D-Sub 25 pins

CDN S SERIES

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Product range 150 kHz to 230 MHz

CDN type	Product name	Line type	Application	Connector EUT port	Connector AE port
S1	CDN S501A	coaxial line	50 Ω coaxial line	BNC 50 Ω	BNC 50 Ω
S1	CDN S502A	coaxial line, double screened	50 Ω coaxial line	N 50 Ω	N 50 Ω
S1	CDN S751A	coaxial line	75 Ω coaxial line	BNC 75 Ω	BNC 75 Ω
S1	CDN S752A	coaxial line, double screened	75 Ω coaxial line	N 75 Ω	N 75 Ω
S2	CDN S200	2 wires, screened	XLR-Audio, pin 3 to ground	XLR, 3 pins	XLR, 3 pins
S4	CDN S400	4 wires, screened	DIN-Audio, 5 pins, pin 2 to ground	DIN, 5 pins	DIN, 5 pins
USB	CDN USB/c	USB, screened	USB for central devices, USB up to 2.0	USB "B" type 	USB "A" type 
USB	CDN USB/p	USB, screened	USB for peripheral devices, USB up to 2.0	USB "A" type 	USB "B" type 
S8	CDN ST08A	Telecommunication line, screened, up to 8 balanced lines (4 pairs)	up to 8 lines, e.g. Ethernet	RJ45	RJ45
USB	CDN USB3.0	USB, screened, 9 lines	USB up to 3.0	USB "A" type 	USB "A" type 
S9	CDN S900	9 wires, screened	Data line up to 9 wires, RS232	D-Sub 9 pins	D-Sub 9 pins
S15	CDN S150	15 wires, screened	Data line up to 15 wires	D-Sub 15 pins	D-Sub 15 pins
HDMI	CDN HDMI	HDMI, screened, 19 lines	High speed HDMI with HDCP, HEC (Ethernet), ARC and DSC		
S25	CDN S250	25 wires, screened	Data line up to 25 wires	D-Sub 25 pins	D-Sub 25 pins

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Electrical specification CDN S501-10

Frequency range:	10 kHz to 80 MHz
Power rating (EUT- and AE port)	
AC max. voltage (line to ground):	250 V
DC max. voltage (line to ground):	400 V
Current max :	250 mA
Test voltage:	750 V DC, 2 sec
Common mode impedance (EUT port)	
10 kHz to 26 MHz:	150 Ω \pm 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:	<20 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:	> 2 GHz sin.
Decoupling of CM disturbance (RF port / AE)	
10 kHz to 80 MHz:	>60 dB

Electrical specification CDN USB/c-10 and CDN USB/p-10

Frequency range:	10 kHz to 80 MHz
Power rating (EUT- and AE port)	
AC max. voltage (line to ground):	100 V
DC max. voltage (line to ground):	100 V
Current max :	1 A
Test voltage:	200 V DC, 2 sec
Common mode impedance (EUT port)	
10 kHz to 26 MHz:	150 Ω \pm 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:	<20 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:	> 100 MHz sin. (data pair balanced)
Decoupling of CM disturbance (RF port / AE)	
10 kHz to 80 MHz:	>60 dB

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Electrical specification CDN ST08-10

Frequency range:	10 kHz to 80 MHz
Line parameters:	4 pairs, balanced, shielded, 100 Ω
Power rating (EUT- and AE port)	
AC max. voltage (line to ground):	100 V
DC max. voltage (line to ground):	150 V
Current max :	1 A
Test voltage:	200 V DC, 2 sec
Common mode impedance (EUT port)	
10 kHz to 26 MHz:	150 Ω \pm 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:	<20 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:*	> 250 MHz sin.
Decoupling of CM disturbance (RF port/AE)	
10 kHz to 80 MHz:	>60 dB

Electrical specification CDN S250-10 and S900-10

Frequency range:	10 kHz to 80 MHz
Power rating (EUT- and AE port)	
AC max. voltage (line to ground):	150 V
DC max. voltage (line to ground):	150 V
Current max :	250 mA
Test voltage:	500 V DC, 2 sec
Common mode impedance (EUT port)	
10 kHz to 26 MHz:	150 Ω \pm 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:	<20 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 to 80 MHz:	>60 dB

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Electrical specification CDN S501A, S502A, S751A and S752A

Frequency range:	150 kHz to 230 MHz
Power rating (EUT- and AE port)	
AC max. voltage (line to ground):	250 V
DC max. voltage (line to ground):	400 V
Current max :	250 mA
Test voltage:	750 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
Phase angle (EUT Port) 150 kHz to 30 MHz:	0° \pm 20°
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:	10 dB \pm 1 dB
80 MHz to 230 MHz:	10 dB +3 dB / -2 dB
Transmission bandwidth (wanted signal) EUT/AE B3 dB:	> 2 GHz sin.
Decoupling of CM disturbance (RF port/AE)	
150 kHz:	>60 dB
1.5 MHz:	>60 dB
30 MHz:	>50 dB
230 MHz:	>40 dB

Cable specification CDN S502A

Screen:	double screen
Impedance:	50 Ω \pm 2
Min. screening effectiveness:	> 85 dB (up to 1 GHz)
Max. operating frequency:	6 GHz
Max. operating voltage:	2.5 kVrms (at sea level)
Test voltage:	5 kVrms (50 Hz / 1 min)

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Cable specification CDN S752A

Screen:	double screen
Impedance:	75 Ω \pm 1.5
Min. screening effectiveness:	> 78 dB (up to 3 GHz)
Max. operating frequency:	2 GHz
Max. operating voltage:	3 kVrms (at sea level)
Test voltage:	6 kVrms (50 Hz / 1 min)

Electrical specification CDN S150, S200, S250, S400 and S900

Frequency range:	150 kHz to 230 MHz
Power rating (EUT- and AE port)	
AC max. voltage (line to ground):	150 V (CDN S400: 34 V)
DC max. voltage (line to ground):	150 V (CDN S400: 34 V)
Current max :	250 mA
Test voltage:	500 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
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 dB / -2 dB
Transmission bandwidth (wanted signal) EUT/AE B3 dB:	> 20 kHz sin.
Decoupling of CM disturbance (RF port/AE)	
150 kHz:	>60 dB
1.5 MHz:	>60 dB
30 MHz:	>50 dB
230 MHz:	>40 dB

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COUPLING / DECOUPLING NETWORK (CDN) FOR SCREENED OR COAXIAL CABLES

Electrical specification CDN ST08A

Frequency range:	150 kHz to 230 MHz
Line parameters:	4 pairs, balanced, shielded, 100 Ω impedance
Power rating (EUT- and AE Port)	
AC max. voltage:	100 V
DC max. voltage:	150 V
Current max :	1 A
Test voltage:	200 VDC, 2 sec
Common mode impedance (EUT Port)	
150 kHz to 30 MHz:	150 Ω \pm 20 Ω
30 MHz to 230 MHz:	150 Ω +60 Ω / -45 Ω
Phase angle (EUT Port) 150 kHz to 30 MHz:	0° \pm 20°
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 30 MHz:	9.5 dB \pm 1 dB
30 MHz to 230 MHz:	9.5 dB +4 dB / -2 dB
Transmission bandwidth (wanted signal) EUT/AE B3 dB: *	> 250 MHz sin.
Decoupling of common mode disturbances (EUT/AE)	
150 kHz to 1.5 MHz:	\geq 60 dB
1.5 MHz to 30 MHz:	\geq 60 dB
230 MHz:	>40 dB

*) all balanced parameters are in relation to a symmetrical load of 100 Ω

CDN S SERIES

COUPLING / DECOUPLING NETWORK (CDN) FOR SCREENED OR COAXIAL CABLES

Electrical specification CDN USB/c and USB/p

Frequency range:	150 kHz to 230 MHz
Power rating (EUT- and AE port)	
AC max. voltage (line to ground):	100 V
DC max. voltage (line to ground):	100 V
Current max :	1 A
Test voltage:	200 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
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:	10 dB \pm 1 dB
80 MHz to 230 MHz:	10 dB +3 dB / -2 dB
Transmission bandwidth (wanted signal) EUT / AE B3 dB: *	> 80 MHz sin. (data pair balanced)
Decoupling of CM disturbance (RF port/AE)	
150 kHz:	>60 dB
1.5 MHz:	>60 dB
30 MHz:	>50 dB
230 MHz:	>40 dB

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COUPLING / DECOUPLING NETWORK (CDN) FOR SCREENED OR COAXIAL CABLES

Electrical specification CDN USB3.0

Frequency range:	150 kHz to 230 MHz
Line parameters:	according USB 3.0 specification, screened 9 lines
Power rating (EUT- and AE Port)	
AC max. voltage:	100 V
DC max. voltage:	100 V
Current max :	1 A
Common mode impedance (EUT Port)	
150 kHz to 30 MHz:	150 Ω \pm 20 Ω
30 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 30 MHz:	10 dB \pm 1 dB
30 MHz to 230 MHz:	10 dB +3 dB / -2 dB
Decoupling of common mode disturbances (EUT / AE)	
150 kHz:	>60 dB
1.5 MHz:	>60 dB
30 MHz:	>50 dB
230 MHz:	>40 dB

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Electrical specification CDN HDMI

Frequency range:	150 kHz to 230 MHz
Line parameters:	according HDMI specification, screened 19 lines
Power rating (EUT- and AE Port)	
AC max. voltage:	100 V
DC max. voltage:	150 V
Current max :	according HDMI specification
Common mode impedance (EUT Port)	
150 kHz to 30 MHz:	150 Ω \pm 20 Ω
30 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 30 MHz:	10 dB \pm 1 dB
30 MHz to 230 MHz:	10 dB +3 dB / -2 dB
Decoupling of common mode disturbances (EUT / AE)	
150 kHz:	>60 dB
1.5 MHz:	>60 dB
30 MHz:	>50 dB
230 MHz:	>40 dB

Mechanical specifications

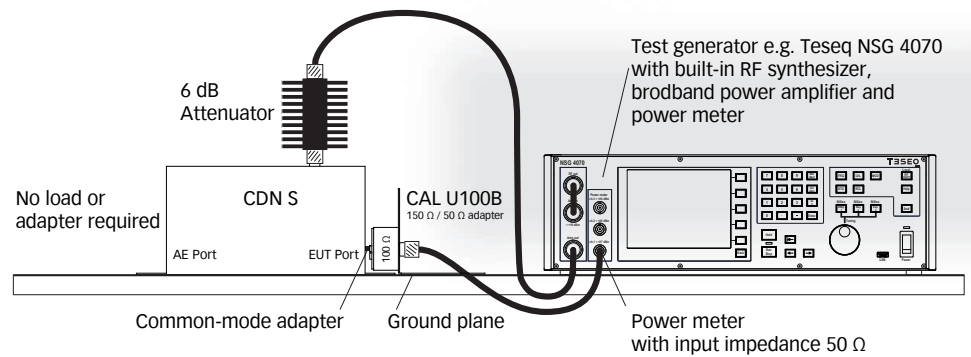
Size (W x H x D):	100 mm x 100 mm x 240 mm (CDN HDMI and CDN S752A: 288 mm)
Weight:	approx. 1.5 kg

Environmental conditions

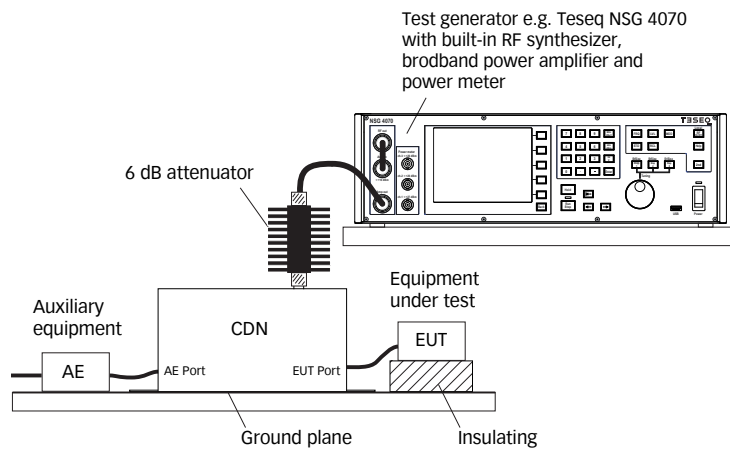
Classification:	Indoor use only
Operating temperature:	+5°C to +40°C
Relative humidity:	up to 80%

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Example of test set-up calibration



Example of EUT test set-up



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Model No. and options

Part number	Description
242471	CDN S501A-10 CDN S1, 10 kHz to 80 MHz (BNC 50 Ω)
242472	CDN S501A-10S CDN S1, 10 kHz to 80 MHz (BNC 50 Ω) with calibration adapter in storage case
247777	CDN USB/c-10 CDN with USB connector (EUT-central device), 10 kHz to 80 MHz
247778	CDN USB/c-10S CDN with USB connector (EUT-central device), 10 kHz to 80 MHz, with calibration adapter in storage case
247779	CDN USB/p-10 CDN with USB connector (EUT-peripheral devices), 10 kHz to 80 MHz
247780	CDN USB/p-10S CDN with USB connector (EUT-peripheral devices), 10 kHz to 80 MHz, with calibration adapter in storage case
242479	CDN ST08-10 CDN for screened eight lines with RJ45 connector, 10 kHz to 80 MHz
242486	CDN ST08-10S CDN for screened eight lines with RJ45 connector, 10 kHz to 80 MHz, with calibration adapter in storage case
242478	CDN S900-10 CDN S9, 10 kHz to 80 MHz (D-sub)
242485	CDN S900-10S CDN S9, 10 kHz to 80 MHz (D-sub) with calibration adapter in storage case
242480	CDN S250-10 CDN S25, 10 kHz to 80 MHz (D-sub)
242488	CDN S250-10S CDN S25, 10 kHz to 80 MHz (D-sub) with calibration adapter in storage case
248664	CDN S501A CDN S1, 230 MHz (BNC 50 Ω)
248656	CDN S501AS CDN S1, 230 MHz (BNC 50 Ω) with calibration adapter in storage case
248662	CDN S502A CDN S1, 230 MHz (N 50 Ω), double screened
248657	CDN S502AS CDN S1, 230 MHz (N 50 Ω), double screened with calibration adapter in storage case

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Model No. and options (continued)

Part number	Description
248668	CDN S751A CDN S1, 230 MHz (BNC 75 Ω)
248658	CDN S751AS CDN S1, 230 MHz (BNC 75 Ω) with calibration adapter in storage case
248666	CDN S752A CDN S1, 230 MHz (N 75 Ω), double screened
248659	CDN S752AS CDN S1, 230 MHz (N 75 Ω), double screened with calibration adapter in storage case
231005	CDN S200 CDN S2, 230 MHz (audio)
244144	CDN S200S CDN S2, 230 MHz (audio) with calibration adapter in storage case
231006	CDN S400 CDN S4, 230 MHz (DIN)
244145	CDN S400S CDN S4, 230 MHz (DIN) with calibration adapter in storage case
237501	CDN USB/c CDN with USB connector (EUT-central device)
244150	CDN USB/cS CDN with USB connector (EUT-central device) and calibration adapter in storage case
237503	CDN USB/p CDN with USB connector (EUT-peripheral device)
244151	CDN USB/pS CDN with USB connector (EUT-peripheral device) and calibration adapter in storage case
242546	CDN USB3.0 CDN S9 with USB connector type "A"
242559	CDN USB3.0S CDN S9 with USB connector type "A" and calibration adapter in storage case
231007	CDN S900 CDN S9, 230 MHz (D-sub)
244146	CDN S900S CDN S9, 230 MHz (D-sub) with calibration adapter in storage case
231008	CDN S150 CDN S15, 230 MHz (D-sub)

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COUPLING / DECOUPLING NETWORK (CDN) FOR SCREENED OR COAXIAL CABLES

Model No. and options (continued)

Part number	Description
244147	CDN S150S CDN S15, 230 MHz (D-sub) with calibration adapter in storage case
242545	CDN HDMI CDN S19 for HDMI
242558	CDN HDMIS CDN S19 for HDMI and calibration adapter in storage case
231009	CDN S250 CDN S25, 230 MHz (D-sub)
244148	CDN S250S CDN S25, 230 MHz (D-sub) with calibration adapter 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
247825	CAL U100B Universal calibration unit (150 Ω / 50 Ω adapter)
239902	IMA U100 Universal impedance measuring adapter (0 Ω)
242440	SAR S500 Calibration adapter part for BNC and N
247837	SAR S200 Common mode adapter for XLR
247838	SAR S400 Common mode adapter for DIN
247839	SAR SUB9 Common mode adapter for D-sub 9 pins (screened)
247840	SAR SUB15 Common mode adapter for D-sub 15 pins (screened)
247841	SAR SUB25 Common mode adapter for D-sub 25 pins (screened)
242439	SAR T800 Common mode adapter for RJ45
247835	SAR USB-A Common-mode adapter for USB connector type "A"
247836	SAR USB-B Common-mode adapter for USB connector type "B"
242464	SAR HDMI Common-mode adapter for HDMI

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