



CDN HSS-2 COUPLING DECOUPLING NETWORK FOR UNSHIELDED SYMMETRICAL HIGH SPEED COMMUNICATION LINES



The Coupling Decoupling Network CDN HSS-2 is designed for convenient surge testing with 1.2/50 μ s pulses, as defined in IEC/EN 61000-4-5, on unshielded symmetrical high speed telecommunication lines e.g. Ethernet. Coupling modes to 1, 2 or 4 pairs are given and coupled with 40 Ω in series with a capacitive coupling element. The CDN HSS-2 allows testing on ISDN and Ethernet with 10/100BaseT and 1000BaseT as well. Power over Ethernet (PoE) is applicable.

With a surge test voltage of 2 kV is the maximal residual voltage at the AE port only 65 V due to the excellent decoupling network. Additional decoupling elements are not required to protect the auxiliary equipment (AE). The high decoupling provides an AE independent pulse shape for the EUT testing. A high measurement reproducibility is given by using the CDN HSS-2. The decoupling network is in accordance with IEC 61000-4-5/Ed.3/77B/674A/CD:2012-05.

It can be used with Teseq's NSG series or any industry standard surge generator with the appropriate connector adapter.



- CDN for 1.2/50 μ s pulse as per IEC 61000-4-5/Ed.3/77B/674A/CD:2012-05
- CDN for up to 8 wire unshielded twisted pair (UTP)
- Coupling to 1, 2 or 4 pairs
- ISDN, 10/100BaseT, 1000BaseT
- PoE applicable

Technical specifications

Circuit diagram:	according to Fig. 11 of IEC 61000-4-5/Ed.3/77B/674A/CD:2012-05
Max. surge test voltage:	2 kV* (1.2/50 μ s pulse as per IEC/EN 61000-4-5)
Max. surge test current:	50 A (8/20 μ s pulse as per IEC/EN 61000-4-5)
Coupling mode:	Common mode to 1, 2 or 4 pairs with respect to CDN chassis
Coupling elements:	40 Ω in series with capacitive coupling elements
Max. residual test voltage at AE port:	65 V (at 2 kV surge test voltage)
Surge input connector:	HV connector female (Fischer D103A023)
Applications:	ISDN, 10/100BaseT, 1000BaseT etc., switchable per jumper, PoE applicable
Cable type:	8 wire unshielded twisted pair (UTP)
Insertion loss, typical:	9 dB at 100 MHz
Other typical network limits:	TIA-568-A Category 5-TSB95 Link
Max. operating speed:	1000BaseT
Max. operating voltage:	100 VDC between pairs
Max. operating current:	1 A (rated for Power over Ethernet)
Connection (EUT port, AE port):	RJ45 female
*) +10 % tolerance allowed	

Mechanical specifications

Size (W x H x D) in mm:	200 x 200 x 470
Weight:	approx. 15 kg



Advanced Test Solutions for EMC

CDN HSS-2

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Typical results of the CDN HSS-2's 1000 BaseT network performance (Limits as given for cable category 5-TSB95 Link)

Insertion loss					
Worst pair:	4 (7, 8)				
Value:	9.2 dB				
Limit:	21.3 dB				
Values margin:	12.1 dB				
Frequency:	99.25 MHz				
NEXT					
Worst pair:	3 (3, 6)	3 (3, 6)			
Value:	25.5 dB	27.1 dB			
Limit:					
Values margin:					
Frequency:	246 MHz	250 MHz			
Return loss					
Worst pair:	3 (3, 6)	3 (3, 6)			
Value:	20.0 dB	19.8 dB			
Limit:	10.7 dB	10.2 dB			
Values margin:	9.3 dB	9.6 dB			
Frequency:	82.25 MHz	97.75 MHz			
ELFEXT					
Worst combination:	3 (3, 6)	4 (7, 8)			
Value:	43.4 dB	43.1 dB			
Limit:	33.3 dB	9.8 dB			
Values margin:	11.13 dB	9.8 dB			
Frequency:	11.13 MHz	11.13 MHz			
ACR²					
Worst combination:	3 (3, 6)	3 (3, 6)			
Value:	10.5 dB	12.7 dB			
Limit:	-	-			
Values margin:	-	-			
Frequency:	246.0 MHz	250.0 MHz			

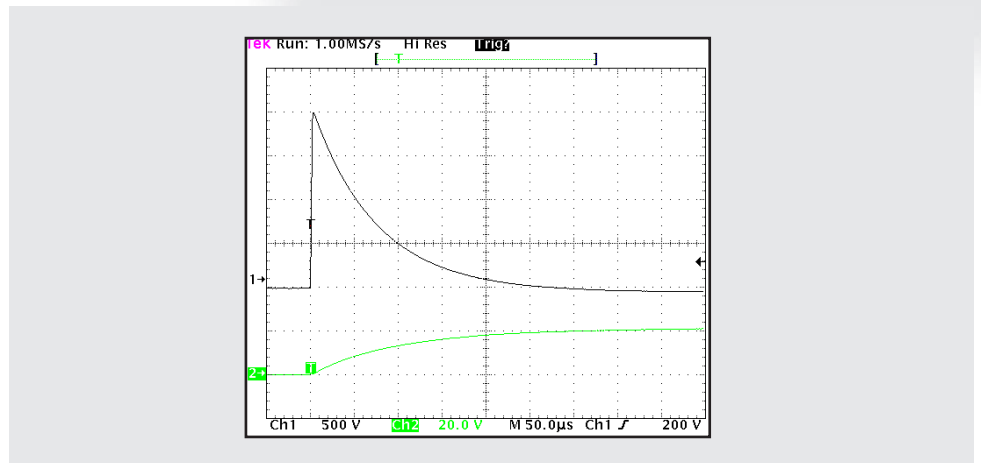


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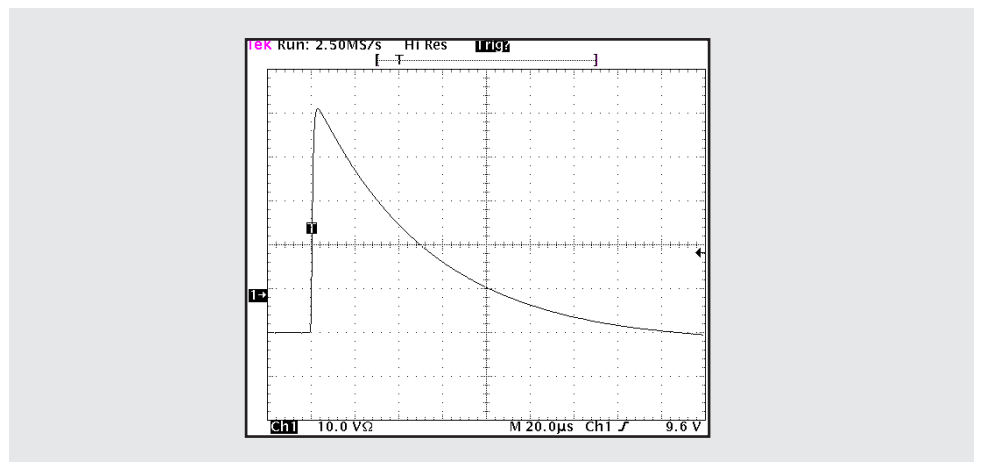
CDN HSS-2, view to the EUT port

Typical voltage waveform at the open-circuit EUT- and shorted AE port of the CDN HSS-2



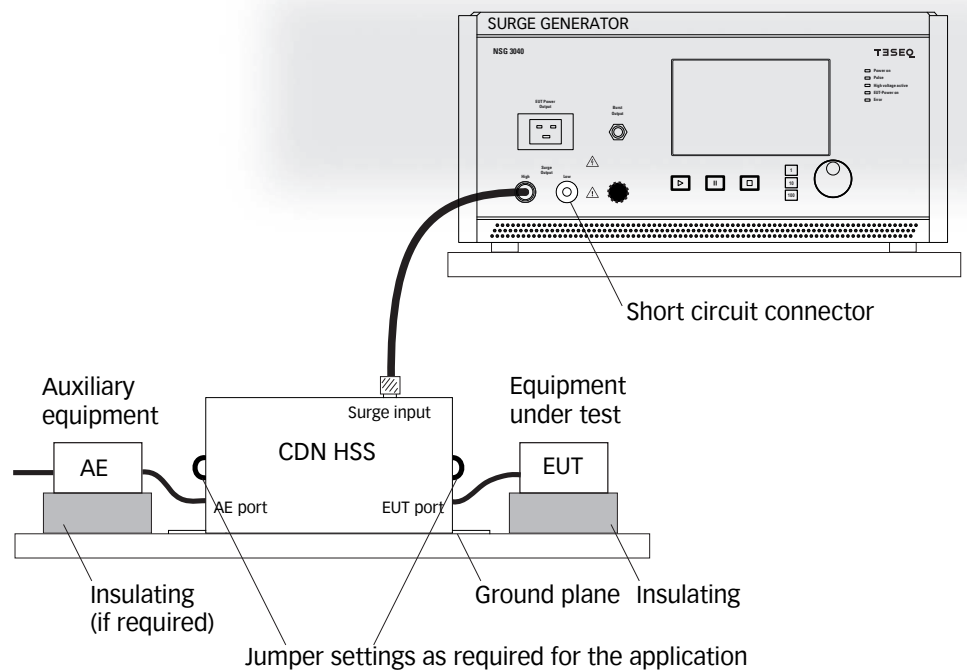
CDN HSS-2, view to the AE port

Typical current waveform at the short-circuit EUT port of the CDN HSS-2



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Setup example with CDN HSS-2







CDN HSS-2 COUPLING DECOUPLING NETWORK FOR UNSHIELDED SYMMETRICAL HIGH SPEED COMMUNICATION LINES



Model No. and options

Product picture	Product name	Description	Part number
	CDN HSS-2	CDN for 2 kV surge pulse 1.2/50 μ s IEC/EN 61000-4-5 on unshielded symmetrical high speed telecommunication lines	243826
	CDN HSS-2-TC	Traceable calibration (ISO17025), order only with the device, only in conjunction with the surge generator	97-243826

Required options for using NSG 3040/3060 or Modula

Product picture	Product name	Description	Part number
	INA 6549	Coax cable, 2 m with connectors (Fischer 105/Fischer 103)	403-634
	SHO F105	Short circuit connector Fischer 105	244759

Required options for using NSG 2050

Product picture	Product name	Description	Part number
	INA 371	Coax cable, 0.8 m with connectors (Lemo KAB-FFA.3Y/Fischer 103)	244780
	SHO Lemo	Short circuit connector Lemo KAB-FFA.3Y	244755

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