CN SERIES

COUPLING NETWORK (CN) FOR IEC / EN 61000-4-16, DC TO 150 kHz

CN M232-AC

- **Coupling networks designed for IEC / EN 61000-4-16**
- **M series for DC or AC power ports**
- **A series for communication ports, intended for unscreened, unbalanced lines**
- **T series for unscreened balanced pairs**
- **4 mm banana sockets for M and A series**
- **Terminal block for M type with 100 Amps**
- **RJ45 sockets for T series**

IEC / EN 61000-4-16 specifies the design and performance of a range of coupling networks. Each coupling network is related to the type of cable and connector. An specific 60 dB decoupling network is required in addition to the coupling network type M and AF.
Please contact Teseq or visit www.teseq.com for the IEC / EN 61000-4-16 system solution.

Technical specifications M type

Product name	Lines	EUT test port	Max. EUT current	Max. EUT voltage	Connectors EUT and AE port
CN M232-DC	2	DC power	32 A	50 V*	4 mm safety banana
CN M232-300-DC	2	DC power	32 A	300 V* (fans switched on)	4 mm safety banana
CN M232-AC	2	AC power	32 A	250 V	4 mm safety banana
CN M332-AC	3	AC power	32 A	250 V	4 mm safety banana
CN M432-AC	4	AC power	32 A	250 V / 400 V**	4 mm safety banana
CN M4100-AC	4	AC power	100 A	400 V / 690 V**	Terminal block
CN M432-3LN-AC	4	AC power	32 A	250 V / 400 V**	4 mm safety banana
CN M532-AC	5	AC power	32 A	250 V / 400 V**	4 mm safety banana

*) Maximum potential free line to line voltage. The maximum disturbance test level is in relation to the EUT supply voltage. See the advice given in the user manual in case of EUT supply voltage with connection to ground.
**) Maximum line to line voltage

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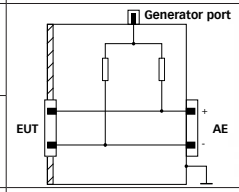
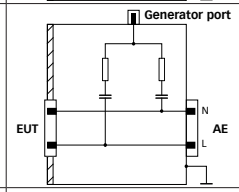
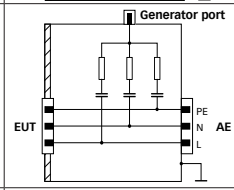
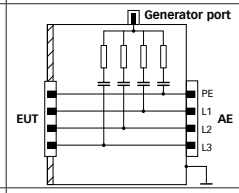
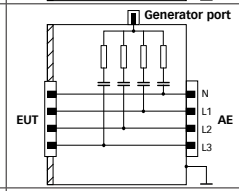
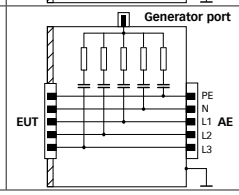
Technical specifications M type (continued)

Product name	Schematic circuit example	Disturbance signal frequency range	Disturbance signal max. test level
CN M232-DC		DC	50 V* cont. / 300 V 1 s
CN M232-300-DC			300 V* cont. / 300 V* 1 s
CN M232-AC		15 Hz to 150 kHz	50 V cont. / 300 V 1 s at 16⅔ Hz, 50 Hz and 60 Hz
CN M332-AC		15 Hz to 150 kHz	50 V cont. / 300 V 1 s at 16⅔ Hz, 50 Hz and 60 Hz
CN M432-AC, CN M4100-AC		15 Hz to 150 kHz	50 V cont. / 300 V 1 s at 16⅔ Hz, 50 Hz and 60 Hz
CN M432-3LN-AC		15 Hz to 150 kHz	50 V cont. / 300 V 1 s at 16⅔ Hz, 50 Hz and 60 Hz
CN M532-AC		15 Hz to 150 kHz	50 V cont. / 300 V 1 s at 16⅔ Hz, 50 Hz and 60 Hz

*) The maximum disturbance test level is in relation to the EUT supply voltage. See the advice given in the user manual in case of EUT supply voltage with connection to ground.

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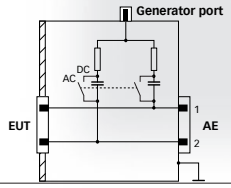
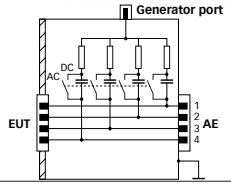
CN SERIES

COUPLING NETWORK (CN) FOR IEC / EN 61000-4-16, DC TO 150 kHz

Technical specifications A type

Product name	Lines	EUT test port	Max. EUT current	Max. EUT voltage	Connectors EUT and AE port	Schematic circuit example	Disturbance signal	
							Frequency range	Max. test level
CN A201-M	2	Communication: unscreened, unbalanced	16 A	50 V DC 250 V AC*	4 mm safety banana		DC, 15 Hz to 150 kHz (range manually switchable)	50 V cont. / 300 V DC** 1 s, 100 V 1 s at 16⅔ Hz, 50 Hz and 60 Hz
CN A401-M	4	Communication: unscreened, unbalanced	16 A	50 V DC 250 V AC*	4 mm safety banana		DC, 15 Hz to 150 kHz (range manually switchable)	50 V cont. / 300 V DC** 1 s, 100 V 1 s at 16⅔ Hz, 50 Hz and 60 Hz

*) Maximum operating voltage is in relation to the frequency: 250 V AC at 50/60 Hz, 50 V AC at 10 kHz
**) Maximum potential free line to line voltage.

EUT port of CN A401-M

AE port of CN A401-M

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CN SERIES

COUPLING NETWORK (CN) FOR IEC / EN 61000-4-16, DC TO 150 kHz

Technical specifications T type

Model	CN T8-DC	CN T8-AC	CN T444-DC	CN T444-AC
Frequency range:	DC	15 Hz to 150 kHz	DC	15 Hz to 150 kHz
Line parameters: Connector (EUT and AE port): Application: PoE:	4 pairs RJ45 1000BaseT no	4 pairs RJ45 1000BaseT no	2 pairs RJ45 10 / 100BaseT no	2 pairs RJ45 10 / 100BaseT no
Power ratings (EUT and AE port) AC max. voltage (line to ground): DC max. voltage (line to ground): DC max. voltage (pair to pair): Current max.: Test voltage: Isolation voltage (EUT to AE):	 63 V (RF port open) 100 V (RF port open) dependent on test level 200 mA (line) 200 V DC, 2 s 1500 V_{rms}	 63 V 100 V 100 V 200 mA (line) 200 V DC, 2 s 1500 V_{rms}	 63 V (RF port open) 100 V (RF port open) dependent on test level 200 mA (line) 200 V DC, 2 s 1500 V_{rms}	 63 V 100 V 100 V 200 mA (line) 200 V DC, 2 s 1500 V_{rms}
Common mode impedance (EUT port) DC / 15 Hz to 150 kHz:	150 Ω ±5 Ω	150 Ω ±5 Ω (f >500 Hz)	150 Ω ±5 Ω	150 Ω ±5 Ω (f >500 Hz)
Coupling path (RF port / EUT port) Connector (RF port): RF voltage:	 BNC 50 Ω <20 V	 BNC 50 Ω <20 V	 BNC 50 Ω <20 V	 BNC 50 Ω <20 V
Voltage division factor (RF port to EUT port) DC / 15 Hz to 150 kHz:	9.5 dB ±1 dB	9.5 dB ±1 dB (f >500 Hz)	9.5 dB ±1 dB	9.5 dB ±1 dB (f >500 Hz)
Transmission bandwidth (EUT to AE)*) (wanted signal)	>100 MHz sin.	>100 MHz sin.	>100 MHz sin.	>100 MHz sin.
Crosstalk (EUT and AE port) 1 MHz to 100 MHz:	≥61 dB to ≥21 dB	≥61 dB to ≥21 dB	≥61 dB to ≥21 dB	≥61 dB to ≥21 dB
Longitudinal conversion loss (LCL), (EUT port) 150 kHz: 1.5 MHz: 30 MHz:	 >75 dB >60 dB >40 dB	 >75 dB >60 dB >40 dB	 >75 dB >60 dB >40 dB	 >75 dB >60 dB >40 dB
Decoupling of common mode disturbance (RF port / AE port) DC / 15 Hz to 150 kHz:	 >60 dB	 >60 dB	 >60 dB	 >60 dB

*) 3 dB bandwidth, all balanced parameters in relation to a symmetrical load of 100 Ω

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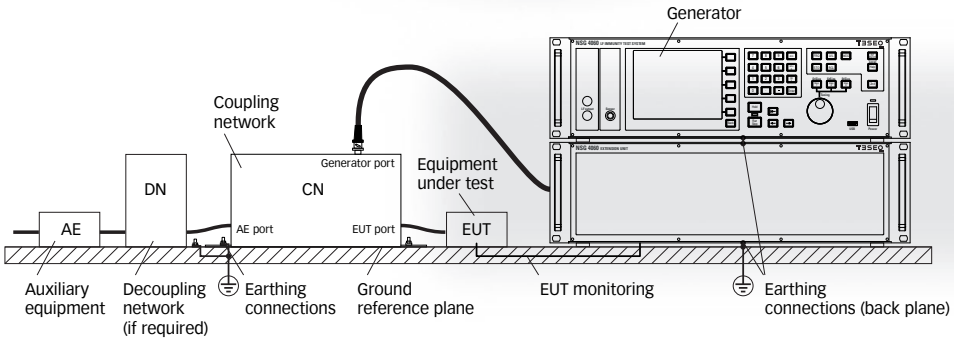
CN SERIES

COUPLING NETWORK (CN) FOR IEC / EN 61000-4-16, DC TO 150 kHz

CN T series

CN M and A series (partly)

EUT test set-up with Teseq NSG 4060



Mechanical specifications M and A series (except CN M232-300-DC and CN M4100-AC)

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

Mechanical specifications CN M232-300-DC and CN M4100-AC

Size (W x H x D):	200 mm x 200 mm x 470 mm
Weight:	approx. 12 kg

Mechanical specifications T series

Size (W x H x D):	105 mm x 65 mm x 110 mm
Weight:	approx. 0.5 kg

Power supply specifications for CN M232-300-DC

Power:	30 W
Input voltage:	90 to 264 VAC (plugs included for EU, UK, USA and AUS)
Output voltage:	24 V DC, ≥1.25 A, (DC plug, inner ∅ 2.1 mm x outer ∅ 5.5 mm)

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Model No. and options

Part number	Description
255600	CN M232-DC Coupling network accord. IEC 61000-4-16, M2, 32 A, DC
257050	CN M232-300-DC Coupling network accord. IEC 61000-4-16, M2, 32 A, 300 V DC
255601	CN M232-AC Coupling network accord. IEC 61000-4-16, M2, 32 A, AC
255602	CN M332-AC Coupling network accord. IEC 61000-4-16, M3, 32 A, AC
255615	CN M432-AC Coupling network accord. IEC 61000-4-16, M4, 32 A, AC
258000	CN M4100-AC Coupling network accord. IEC 61000-4-16, M4, 100 A, 690 V AC
255614	CN M432-3LN-AC Coupling network accord. IEC 61000-4-16, M4, 3xL,N (without PE line) 32 A, AC
255613	CN M532-AC Coupling network accord. IEC 61000-4-16, M5, 32 A, AC
255604	CN A201-M Coupling network accord. IEC 61000-4-16, AF2, 16 A, DC / AC, manual switch
255606	CN A401-M Coupling network accord. IEC 61000-4-16, AF4, 16 A, DC / AC, manual switch
255607	CN T8-AC Coupling network accord. IEC 61000-4-16, T8, 1000BaseT, AC
255608	CN T8-DC Coupling network accord. IEC 61000-4-16, T8, 1000BaseT, DC
255609	CN T444-AC Coupling network accord. IEC 61000-4-16, T4, 10 / 100BaseT, AC
255610	CN T444-DC Coupling network accord. IEC 61000-4-16, T4, 10 / 100BaseT, DC
97-255600	CN-TC Traceable calibration (ISO17025) for IEC 61000-4-16 requirements, order only with CN
98-255600	CN-ACC Accredited calibration (ISO17025) for IEC 61000-4-16 requirements, order only with CN

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