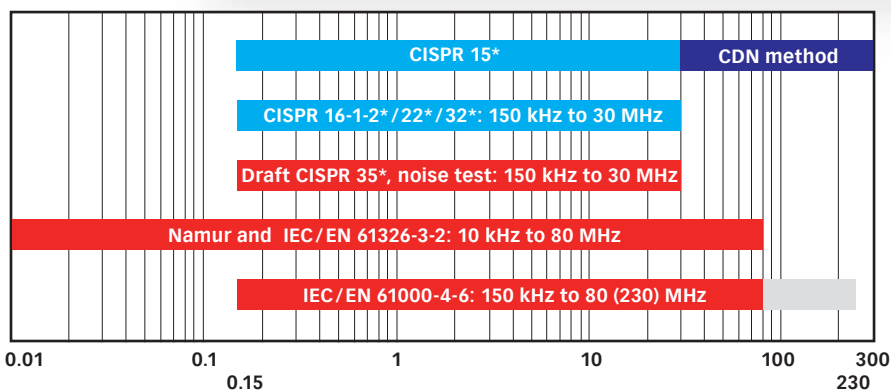




# COUPLING DECOUPLING NETWORKS FOR IEC / EN 61000-4-6

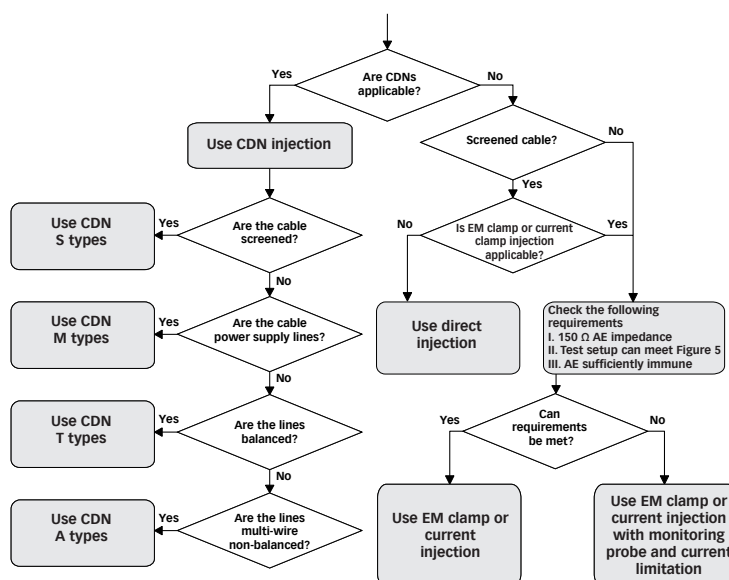


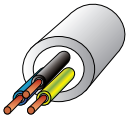

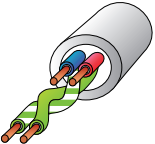
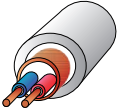

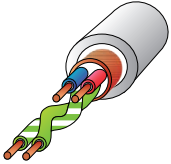
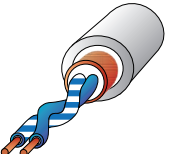

IEC / EN 61000-4-6 specifies the design and performance of a range of coupling/decoupling networks (CDNs). Each CDN is specific to the type of cable and the intended signal carried on the cable. Teseq offers an extensive range of CDNs which fully comply with the requirements of the standard and provide a simple and reliable method of injecting RF energy into the equipment under test (EUT). Each CDN is also useable for emission testing, special types are meet the requirements of CISPR 15, CISPR 16-1-2, CISPR 22, CISPR 32, CISPR 35, NAMUR NE 21 and IEC / EN 61326-3-2.



Frequency in MHz  
 ■ Emissions testing, ■ Immunity testing, ■ Extended range  
 \* Standard contains additional requirements for the CDN.

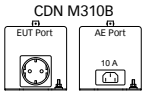
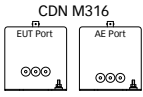
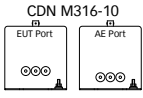
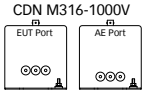
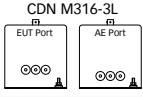
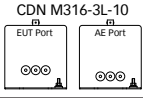
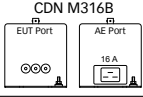
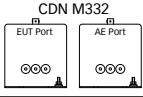
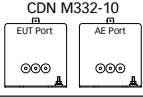
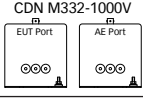
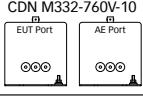
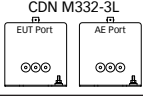
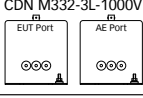
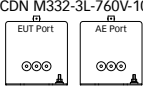
## IEC / EN 61000-4-6: Rules for selecting the injection method



| Cable type  | CDN type                       | Application   | Product range   |
|---|--------------------------------|---|---|
|    | <b>M type</b>                  | Used for unscreened AC or DC power supply applications.                                 | M1 for one line, M2 for two lines, M2/3 switchable for two or three lines, M3 for three lines, M4 for lines and M5 for five lines<br>"-10 types" for frequency range 10 kHz to 80 MHz,<br>"-3L and -3LN types" for connections without PE<br>"-750V, -760V, -1000V types" for higher EUT voltages |
|    | <b>AF type</b>                 | Used for all unscreened, unbalanced lines, carrying low current.                        | Types with 4 mm banana sockets:<br>AF2 for two lines, AF3 for three lines, AF4 for lines, AF5 for five lines, AF7 for 7 lines and AF8 for 8 lines<br>Types with D-Sub connector:<br>AF8 for 8 lines, AF12 for 12 lines and AF15 for 15 lines<br>"-10 types" for frequency range 10 kHz to 80 MHz  |
|    | <b>CAN bus type</b>            | Specially designed to test the unscreened CAN bus.                                      | Types with D-Sub connector for unscreened four or five lines<br>"-10 types" for frequency range 10 kHz to 80 MHz  |
|  | <b>S type</b>                  | Used for screened cables.   | Types with D-Sub connector for screened lines with up to 25 lines:<br>"-10 types" for frequency range 10 kHz to 80 MHz<br>Type with DIN connector   |
|  | <b>S type coaxial</b>          | Used for coaxial cables.  | Types with coaxial connector:<br>See also product range Impedance Stabilization Networks for ISN S501A, S502A, S751 and S752.   |
|  | <b>S type for USB and HDMI</b> | Specially designed to test the USB and HDMI   | CDN USB/c, USB/p, CDN USB3.0, CDN HDMI  |
|  | <b>ST type</b>                 | Used for testing screened, balanced lines for telecommunication ports on ITE equipment. | CDN ST08A<br>See also product range Impedance Stabilization Networks for ISN ST08.  |
|  | <b>T type</b>                  | Used for unscreened, balanced lines for telecommunication ports on ITE equipment.       | CDN T2-10, T210A...T246AS, T4-10, T411A...T4AS<br>CDN T8, T8-10<br>See also product range Impedance Stabilization Networks for ISN T2A, T4A, ISN T8 and ISN T8-CAT6.  |

| Product                 | Drawing | Frequency range          | CDN type and application                            | EUT / AE connector type                                    | CDN case size | Immunity testing IEC/EN 61000-4-6 | Immunity testing 10 kHz to 80 MHz | Emission testing CISPR 15 (CDN method) | Emission testing CISPR 22/32 (ISN/AAN) | Number of lines | Max. EUT current in A (50/60 Hz) | Max. EUT voltage in V AC* [DC]* | Max. RF voltage V | 3 dB bandwidth (sinusoidal) |
|-------------------------|---------|--------------------------|---|--|---------------|-----------------------------------|-----------------------------------|--|--|-----------------|----------------------------------|---------------------------------|-------------------|-----------------------------|
| <b>CDN M116</b>         |         | 150 kHz to 230 (300) MHz | CDN M 1<br>1 PE line                                | 4 mm safety banana sockets                                 | 1             | ■                                 | ■                                 |  |  | 1               | 16 (1)                           | —                               | 20                | —                           |
| <b>CDN M1-10</b>        |         | 10 kHz to 80 MHz         | CDN M 1<br>1 PE line                                | 4 mm safety banana sockets                                 | 1             | ■                                 | ■                                 |  |  | 1               | 16 (0.3)                         | —                               | 20                | —                           |
| <b>CDN M132</b>         |         | 150 kHz to 230 (300) MHz | CDN M 1<br>1 PE line                                | 4 mm safety banana sockets                                 | 1             | ■                                 | ■                                 |  |  | 1               | 32 (1)                           | —                               | 20                | —                           |
| <b>CDN M210B</b>        |         | 150 kHz to 230 (300) MHz | CDN M2<br>2 power lines (L+N or DC+ /DC-)           | AE: IEC 60320 C14<br>EUT: CEE 7/17                         | 1             | ■                                 | ■                                 |  |  | 2               | 10                               | 250 (433) [800]                 | 30                | —                           |
| <b>CDN M216</b>         |         | 150 kHz to 230 (300) MHz | CDN M2<br>2 power lines (L+N or DC+ /DC-)           | 4 mm safety banana sockets                                 | 1             | ■                                 | ■                                 |  |  | 2               | 16                               | 250 (433) [800]                 | 30                | —                           |
| <b>CDN M216-10</b>      |         | 10 kHz to 80 MHz         | CDN M2<br>2 power lines (L+N or DC+ /DC-)           | 4 mm safety banana sockets                                 | 1             | ■                                 | ■                                 |  |  | 2               | 16                               | 250 (433) [800]                 | 30                | —                           |
| <b>CDN M216-1000V</b>   |         | 150 kHz to 230 (300) MHz | CDN M2<br>2 power lines (L+N or DC+ /DC-)           | 4 mm safety banana sockets                                 | 1             | ■                                 | ■                                 |  |  | 2               | 16                               | 500 (1000) [2000]               | 30                | —                           |
| <b>CDN M232</b>         |         | 150 kHz to 230 MHz       | CDN M2<br>2 power lines (L+N or DC+ /DC-)           | 4 mm safety banana sockets                                 | 4             | ■                                 | ■                                 |  |  | 2               | 32                               | 300 (520) [600]                 | 30                | —                           |
| <b>CDN M232-10</b>      |         | 10 kHz to 80 MHz         | CDN M2<br>2 power lines (L+N or DC+ /DC-)           | 4 mm safety banana sockets                                 | 4             | ■                                 | ■                                 |  |  | 2               | 32                               | 300 (520) [600]                 | 30                | —                           |
| <b>CDN M232-1000V</b>   |         | 150 kHz to 230 MHz       | CDN M2<br>2 power lines (L+N or DC+ /DC-)           | 4 mm safety banana sockets                                 | 4             | ■                                 | ■                                 |  |  | 2               | 32                               | 500 (1000) [2000]               | 30                | —                           |
| <b>CDN M232-760V-10</b> |         | 10 kHz to 80 MHz         | CDN M2<br>2 power lines (L+N or DC+ /DC-)           | 4 mm safety banana sockets                                 | 4             | ■                                 | ■                                 |  |  | 2               | 32                               | 500 (760) [1000]                | 30                | —                           |
| <b>CDN M2-100</b>       |         | 150 kHz to 80 MHz        | CDN M2<br>2 power lines (L+N or DC+ /DC-)           | Terminal block, wire cross section max. 25 mm <sup>2</sup> | 5             | ■                                 | ■                                 |  |  | 2               | 100                              | 300 (520) [600]                 | 30                | —                           |
| <b>CDN M2-100-750V</b>  |         | 150 kHz to 80 MHz        | CDN M2<br>2 power lines (L+N or DC+ /DC-)           | Terminal block, wire cross section max. 25 mm <sup>2</sup> | 5             | ■                                 | ■                                 |  |  | 2               | 100                              | 750 (750) [1000]                | 30                | —                           |
| <b>CDN M016</b>         |         | 150 kHz to 230 (300) MHz | CDN M2/3 switchable 2/3 power lines (L+N or L+N+PE) | 4 mm safety banana sockets                                 | 1             | ■                                 | ■                                 |  |  | 2/3             | 16                               | 250 (433) [800]                 | 30                | —                           |

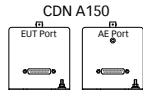
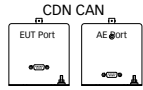
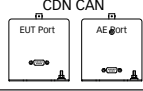
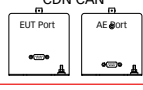
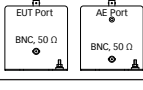
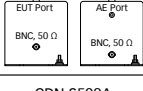
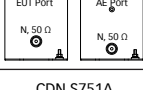

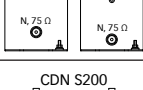

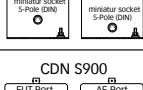
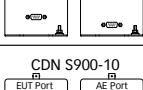
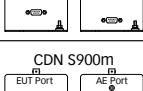
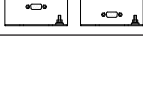
\*) Line to ground voltage, in round brackets line to line AC voltage, in square brackets line to line DC voltage

| Product  | Drawing   | Frequency range          | CDN type and application         | EUT / AE connector type                              | CDN case size | Immunity testing IEC/EN 61000-4-6 | Immunity testing 10 kHz to 80 MHz | Emission testing CISPR 15 (CDN method) | Emission testing CISPR 22/32 (ISN/AAN) | Number of lines | Max. EUT current in A (50/60 Hz) | Max. EUT voltage in V AC* [DC]* | Max. RF voltage V | 3 dB bandwidth (sinusoidal) |
|--|---|--------------------------|----------------------------------|--|---------------|-----------------------------------|-----------------------------------|--|--|-----------------|----------------------------------|---------------------------------|-------------------|-----------------------------|
| <b>CDN M310B</b>                                 |    | 150 kHz to 230 (300) MHz | CDN M3<br>3 power lines (L+N+PE) | AE: IEC 60320 C14<br>EUT: Schuko CEE 7 / 4           | 1             | ■                                 | ■                                 |  |  | 3               | 10                               | 250 (433) [800]                 | 30                | —                           |
| <b>CDN M316</b>                                  |    | 150 kHz to 230 (300) MHz | CDN M3<br>3 power lines (L+N+PE) | 4 mm safety banana sockets                           | 1             | ■                                 | ■                                 |  |  | 3               | 16                               | 250 (433) [800]                 | 30                | —                           |
| <b>CDN M316-10</b>                               |    | 10 kHz to 80 MHz         | CDN M3<br>3 power lines (L+N+PE) | 4 mm safety banana sockets                           | 1             | ■                                 | ■                                 |  |  | 3               | 16                               | 250 (433) [800]                 | 30                | —                           |
| <b>CDN M316-1000V</b>                            |    | 150 kHz to 230 MHz       | CDN M3<br>3 power lines (L+N+PE) | 4 mm safety banana sockets                           | 1             | ■                                 |                                   |  |  | 3               | 16                               | 500 (1000) [2000]               | 30                | —                           |
| <b>CDN M316-3L</b>                               |   | 150 kHz to 230 (300) MHz | CDN M3<br>3 power lines (3L)     | 4 mm safety banana sockets                           | 1             | ■                                 | ■                                 |  |  | 3               | 16                               | 250 (433) [800]                 | 30                | —                           |
| <b>CDN M316-3L-10</b>                            |  | 10 kHz to 80 MHz         | CDN M3<br>3 power lines (3L)     | 4 mm safety banana sockets                           | 1             | ■                                 | ■                                 |  |  | 3               | 16                               | 250 (433) [800]                 | 30                | —                           |
| <b>CDN M316B</b>                                 |  | 150 kHz to 230 (300) MHz | CDN M3<br>3 power lines (L+N+PE) | AE: IEC 60320 C20<br>EUT: 4 mm safety banana sockets | 1             | ■                                 | ■                                 |  |  | 3               | 16                               | 250 (433) [800]                 | 30                | —                           |
| <b>CDN M332</b>                                  |  | 150 kHz to 230 MHz       | CDN M3<br>3 power lines (L+N+PE) | 4 mm safety banana sockets                           | 4             | ■                                 |                                   |  |  | 3               | 32                               | 300 (520) [600]                 | 30                | —                           |
| <b>CDN M332-10</b>                               |  | 10 kHz to 80 MHz         | CDN M3<br>3 power lines (L+N+PE) | 4 mm safety banana sockets                           | 4             | ■                                 | ■                                 |  |  | 3               | 32                               | 300 (520) [600]                 | 30                | —                           |
| <b>CDN M332-1000V</b>                            |  | 150 kHz to 80 MHz        | CDN M3<br>3 power lines (L+N+PE) | 4 mm safety banana sockets                           | 4             | ■                                 |                                   |  |  | 3               | 32                               | 500 (1000) [2000]               | 30                | —                           |
| <b>new in 2016</b><br><b>CDN M332-760V-10</b>    |  | 10 kHz to 80 MHz         | CDN M3<br>3 power lines (L+N+PE) | 4 mm safety banana sockets                           | 4             | ■                                 | ■                                 |  |  | 3               | 32                               | 500 (760) [1000]                | 30                | —                           |
| <b>CDN M332-3L</b>                               |  | 150 kHz to 230 MHz       | CDN M3<br>3 power lines (3L)     | 4 mm safety banana sockets                           | 4             | ■                                 |                                   |  |  | 3               | 32                               | 300 (520) [600]                 | 30                | —                           |
| <b>CDN M332-3L-1000V</b>                         |  | 150 kHz to 80 MHz        | CDN M3<br>3 power lines (3L)     | 4 mm safety banana sockets                           | 4             | ■                                 |                                   |  |  | 3               | 32                               | 500 (1000) [2000]               | 30                | —                           |
| <b>new in 2016</b><br><b>CDN M332-3L-760V-10</b> |  | 10 kHz to 80 MHz         | CDN M3<br>3 power lines (3L)     | 4 mm safety banana sockets                           | 4             | ■                                 | ■                                 |  |  | 3               | 32                               | 500 (760) [1000]                | 30                | —                           |

|             | Product                     | Drawing | Frequency range    | CDN type and application         | EUT / AE connector type                                    | CDN case size | Immunity testing IEC/EN 61000-4-6 | Immunity testing 10 kHz to 80 MHz | Emission testing CISPR 15 (CDN method) | Emission testing CISPR 22/32 (ISN/AAN) | Number of lines | Max. EUT current in A (50/60 Hz) | Max. EUT voltage in V AC* [DC]* | Max. RF voltage V | 3 dB bandwidth (sinusoidal) |
|-------------|-----------------------------|---------|--------------------|----------------------------------|--|---------------|-----------------------------------|-----------------------------------|--|--|-----------------|----------------------------------|---------------------------------|-------------------|-----------------------------|
| new in 2016 | <b>CDN M3-100</b>           |         | 150 kHz to 80 MHz  | CDN M3<br>3 power lines (L+N+PE) | Terminal block, wire cross section max. 25 mm <sup>2</sup> | 5             | ■                                 |                                   |  |  | 3               | 100                              | 300 (520) [600]                 | 30                | —                           |
| new in 2016 | <b>CDN M3-100-3L</b>        |         | 150 kHz to 80 MHz  | CDN M3<br>3 power lines (3L)     | Terminal block, wire cross section max. 25 mm <sup>2</sup> | 5             | ■                                 |                                   |  |  | 3               | 100                              | 300 (520) [600]                 | 30                | —                           |
| new in 2016 | <b>CDN M3-100-750V</b>      |         | 150 kHz to 80 MHz  | CDN M3<br>3 power lines (L+N+PE) | Terminal block, wire cross section max. 25 mm <sup>2</sup> | 5             | ■                                 |                                   |  |  | 3               | 100                              | 750 (750) [1000]                | 30                | —                           |
| new in 2016 | <b>CDN M3-100-3L-750V</b>   |         | 150 kHz to 80 MHz  | CDN M3<br>3 power lines (3L)     | Terminal block, wire cross section max. 25 mm <sup>2</sup> | 5             | ■                                 |                                   |  |  | 3               | 100                              | 750 (750) [1000]                | 30                | —                           |
|             | <b>CDN M416A</b>            |         | 150 kHz to 230 MHz | CDN M4<br>4 power lines (3L+PE)  | 4 mm safety banana sockets                                 | 1             | ■                                 |                                   |  |  | 4               | 16                               | 300 (520) [600]                 | 30                | —                           |
|             | <b>CDN M416A-3LN</b>        |         | 150 kHz to 230 MHz | CDN M4<br>4 power lines (3L+N)   | 4 mm safety banana sockets                                 | 1             | ■                                 |                                   |  |  | 4               | 16                               | 300 (520) [600]                 | 30                | —                           |
|             | <b>CDN M432</b>             |         | 150 kHz to 230 MHz | CDN M4<br>4 power lines (3L+PE)  | 4 mm safety banana sockets                                 | 4             | ■                                 |                                   |  |  | 4               | 32                               | 300 (520) [600]                 | 30                | —                           |
|             | <b>CDN M432-10</b>          |         | 10 kHz to 80 MHz   | CDN M4<br>4 power lines (3L+PE)  | 4 mm safety banana sockets                                 | 4             | ■                                 | ■                                 |  |  | 4               | 32                               | 300 (520) [600]                 | 30                | —                           |
|             | <b>CDN M432-1000V</b>       |         | 150 kHz to 80 MHz  | CDN M4<br>4 power lines (3L+PE)  | 4 mm safety banana sockets                                 | 4             | ■                                 |                                   |  |  | 4               | 32                               | 500 (1000) [2000]               | 30                | —                           |
| new in 2016 | <b>CDN M432-760V-10</b>     |         | 10 kHz to 80 MHz   | CDN M4<br>4 power lines (3L+PE)  | 4 mm safety banana sockets                                 | 4             | ■                                 | ■                                 |  |  | 4               | 32                               | 500 (760) [1000]                | 30                | —                           |
|             | <b>CDN M432-3LN</b>         |         | 150 kHz to 230 MHz | CDN M4<br>4 power lines (3L+N)   | 4 mm safety banana sockets                                 | 4             | ■                                 |                                   |  |  | 4               | 32                               | 300 (520) [600]                 | 30                | —                           |
|             | <b>CDN M432-3LN-10</b>      |         | 10 kHz to 80 MHz   | CDN M4<br>4 power lines (3L+N)   | 4 mm safety banana sockets                                 | 4             | ■                                 | ■                                 |  |  | 4               | 32                               | 300 (520) [600]                 | 30                | —                           |
|             | <b>CDN M432-3LN-1000V</b>   |         | 150 kHz to 80 MHz  | CDN M4<br>4 power lines (3L+N)   | 4 mm safety banana sockets                                 | 4             | ■                                 |                                   |  |  | 4               | 32                               | 500 (1000) [2000]               | 30                | —                           |
| new in 2016 | <b>CDN M432-3LN-760V-10</b> |         | 10 kHz to 80 MHz   | CDN M4<br>4 power lines (3L+N)   | 4 mm safety banana sockets                                 | 4             | ■                                 | ■                                 |  |  | 4               | 32                               | 500 (760) [1000]                | 30                | —                           |

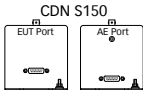
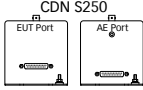
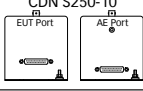
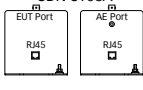
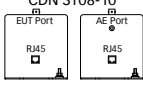
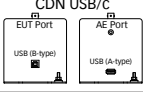
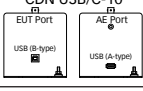
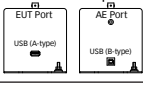
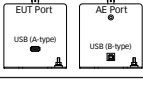
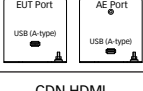
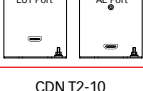
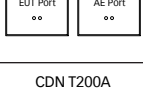
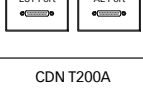

|             | Product                    | Drawing | Frequency range          | CDN type and application   | EUT / AE connector type                                    | CDN case size | Immunity testing IEC/EN 61000-4-6 | Immunity testing 10 kHz to 80 MHz | Emission testing CISPR 15 (CDN method) | Emission testing CISPR 22/32 (ISN/AAN) | Number of lines | Max. EUT current in A (50/60 Hz) | Max. EUT voltage in V AC* [DC]* | Max. RF voltage V | 3 dB bandwidth (sinusoidal) |
|-------------|----------------------------|---------|--------------------------|--|--|---------------|-----------------------------------|-----------------------------------|--|--|-----------------|----------------------------------|---------------------------------|-------------------|-----------------------------|
| new in 2016 | <b>CDN M4-100</b>          |         | 150 kHz to 80 MHz        | CDN M4<br>4 power lines (3L+PE)  | Terminal block, wire cross section max. 25 mm <sup>2</sup> | 5             | ■                                 |                                   |  |  | 4               | 100                              | 300 (520) [600]                 | 30                | —                           |
| new in 2016 | <b>CDN M4-100-3LN</b>      |         | 150 kHz to 80 MHz        | CDN M4<br>4 power lines (3L+N)   | Terminal block, wire cross section max. 25 mm <sup>2</sup> | 5             | ■                                 |                                   |  |  | 4               | 100                              | 300 (520) [600]                 | 30                | —                           |
| new in 2016 | <b>CDN M4-100-750V</b>     |         | 150 kHz to 80 MHz        | CDN M4<br>4 power lines (3L+PE)  | Terminal block, wire cross section max. 25 mm <sup>2</sup> | 5             | ■                                 |                                   |  |  | 4               | 100                              | 750 (750) [1000]                | 30                | —                           |
| new in 2016 | <b>CDN M4-100-3LN-750V</b> |         | 150 kHz to 80 MHz        | CDN M4<br>4 power lines (3L+N)   | Terminal block, wire cross section max. 25 mm <sup>2</sup> | 5             | ■                                 |                                   |  |  | 4               | 100                              | 750 (750) [1000]                | 30                | —                           |
|             | <b>CDN M516A</b>           |         | 150 kHz to 230 MHz       | CDN M5<br>5 power lines (3L+N+PE)  | 4 mm safety banana sockets                                 | 1             | ■                                 |                                   |  |  | 5               | 16                               | 300 (520) [600]                 | 30                | —                           |
|             | <b>CDN M532</b>            |         | 150 kHz to 230 MHz       | CDN M5<br>5 power lines (3L+N+PE)  | 4 mm safety banana sockets                                 | 4             | ■                                 |                                   |  |  | 5               | 32                               | 300 (520) [600]                 | 30                | —                           |
|             | <b>CDN M532-10</b>         |         | 10 kHz to 80 MHz         | CDN M5<br>5 power lines (3L+N+PE)  | 4 mm safety banana sockets                                 | 4             | ■                                 | ■                                 |  |  | 5               | 32                               | 300 (520) [600]                 | 30                | —                           |
|             | <b>CDN M532-1000V</b>      |         | 150 kHz to 80 MHz        | CDN M5<br>5 power lines (3L+N+PE)  | 4 mm safety banana sockets                                 | 4             | ■                                 |                                   |  |  | 5               | 32                               | 500 (1000) [2000]               | 30                | —                           |
| new in 2016 | <b>CDN M532-760V-10</b>    |         | 10 kHz to 80 MHz         | CDN M5<br>5 power lines (3L+N+PE)  | 4 mm safety banana sockets                                 | 4             | ■                                 | ■                                 |  |  | 5               | 32                               | 500 (760) [1000]                | 30                | —                           |
| new in 2016 | <b>CDN M5-100</b>          |         | 150 kHz to 80 MHz        | CDN M5<br>5 power lines (3L+N+PE)  | Terminal block, wire cross section max. 25 mm <sup>2</sup> | 5             | ■                                 |                                   |  |  | 5               | 100                              | 300 (520) [600]                 | 30                | —                           |
| new in 2016 | <b>CDN M5-100-750V</b>     |         | 150 kHz to 80 MHz        | CDN M5<br>5 power lines (3L+N+PE)  | Terminal block, wire cross section max. 25 mm <sup>2</sup> | 5             | ■                                 |                                   |  |  | 5               | 100                              | 750 (750) [1000]                | 30                | —                           |
|             | <b>CDN A201A</b>           |         | 150 kHz to 230 (300) MHz | CDN AF2 for unscreened unbalanced 2 lines application                              | 4 mm safety banana sockets                                 | 1             | ■                                 | ■                                 |  |  | 2               | 4                                | 250 [300]                       | 30                | 20 kHz                      |
| new in 2016 | <b>CDN A201A-50V</b>       |         | 150 kHz to 230 (300) MHz | CDN AF2 for unscreened unbalanced 2 lines application, no resistors against ground | 4 mm safety banana sockets                                 | 1             | ■                                 | ■                                 |  |  | 2               | 4                                | 50 [50]                         | 30                | 20 kHz                      |
|             | <b>CDN A201A-10</b>        |         | 10 kHz to 80 MHz         | CDN AF2 for unscreened unbalanced 2 lines application                              | 4 mm safety banana sockets                                 | 1             | ■                                 | ■                                 |  |  | 2               | 4                                | 250 [300]                       | 30                | 20 kHz                      |


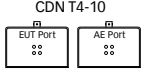
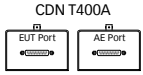









| Product              | Drawing | Frequency range          | CDN type and application   | EUT / AE connector type    | CDN case size | Immunity testing IEC/EN 61000-4-6 | Immunity testing 10 kHz to 80 MHz | Emission testing CISPR 15 (CDN method) | Emission testing CISPR 22/32 (ISN/AAN) | Number of lines | Max. EUT current in A (50/60 Hz) | Max. EUT voltage in V AC* [DC]* | Max. RF voltage V | 3 dB bandwidth (sinusoidal) |
|----------------------|---------|--------------------------|--|----------------------------|---------------|-----------------------------------|-----------------------------------|--|--|-----------------|----------------------------------|---------------------------------|-------------------|-----------------------------|
| <b>CDN A301A</b>     |         | 150 kHz to 230 (300) MHz | CDN AF3 for unscreened unbalanced 3 lines application                              | 4 mm safety banana sockets | 1             | ■                                 | ■                                 |  |  | 3               | 4                                | 250 [300]                       | 30                | 20 kHz                      |
| <b>CDN A301A-50V</b> |         | 150 kHz to 230 (300) MHz | CDN AF3 for unscreened unbalanced 3 lines application, no resistors against ground | 4 mm safety banana sockets | 1             | ■                                 | ■                                 |  |  | 3               | 4                                | 50 [50]                         | 30                | 20 kHz                      |
| <b>CDN A301A-10</b>  |         | 10 kHz to 80 MHz         | CDN AF3 for unscreened unbalanced 3 lines application                              | 4 mm safety banana sockets | 1             | ■                                 | ■                                 |  |  | 3               | 4                                | 250 [300]                       | 30                | 20 kHz                      |
| <b>CDN A401A</b>     |         | 150 kHz to 230 (300) MHz | CDN AF4 for unscreened unbalanced 4 lines application                              | 4 mm safety banana sockets | 1             | ■                                 | ■                                 |  |  | 4               | 4                                | 250 [300]                       | 30                | 20 kHz                      |
| <b>CDN A401A-50V</b> |         | 150 kHz to 230 (300) MHz | CDN AF4 for unscreened unbalanced 4 lines application, no resistors against ground | 4 mm safety banana sockets | 1             | ■                                 | ■                                 |  |  | 4               | 4                                | 50 [50]                         | 30                | 20 kHz                      |
| <b>CDN A401A-10</b>  |         | 10 kHz to 80 MHz         | CDN AF4 for unscreened unbalanced 4 lines application                              | 4 mm safety banana sockets | 1             | ■                                 | ■                                 |  |  | 4               | 4                                | 250 [300]                       | 30                | 20 kHz                      |
| <b>CDN A501</b>      |         | 150 kHz to 230 (300) MHz | CDN AF5 for unscreened unbalanced 5 lines application                              | 4 mm safety banana sockets | 1             | ■                                 | ■                                 |  |  | 5               | 4                                | 160 [250]                       | 30                | 20 kHz                      |
| <b>CDN A501-10</b>   |         | 10 kHz to 80 MHz         | CDN AF5 for unscreened unbalanced 5 lines application                              | 4 mm safety banana sockets | 1             | ■                                 | ■                                 |  |  | 5               | 4                                | 160 [250]                       | 30                | 20 kHz                      |
| <b>CDN A701</b>      |         | 150 kHz to 230 (300) MHz | CDN AF7 for unscreened unbalanced 7 lines application                              | 4 mm banana sockets        | 1             | ■                                 | ■                                 |  |  | 7               | 2                                | 160 [250]                       | 30                | 20 kHz                      |
| <b>CDN A800</b>      |         | 150 kHz to 230 (300) MHz | CDN AF8 for unscreened unbalanced 8 lines application                              | 25 pin D-sub female        | 1             | ■                                 | ■                                 |  |  | 8               | 0.2                              | 63 [100]                        | 15                | 20 kHz                      |
| <b>CDN A800-10</b>   |         | 10 kHz to 80 MHz         | CDN AF8 for unscreened unbalanced 8 lines application                              | 25 pin D-sub female        | 1             | ■                                 | ■                                 |  |  | 8               | 0.2                              | 63 [100]                        | 15                | 20 kHz                      |
| <b>CDN A801</b>      |         | 150 kHz to 230 (300) MHz | CDN AF8 for unscreened unbalanced 8 lines application                              | 4 mm banana sockets        | 1             | ■                                 | ■                                 |  |  | 8               | 2                                | 160 [100]                       | 30                | 20 kHz                      |
| <b>CDN A801-10</b>   |         | 10 kHz to 80 MHz         | CDN AF8 for unscreened unbalanced 8 lines application                              | 25 pin D-sub female        | 1             | ■                                 | ■                                 |  |  | 8               | 2                                | 160 [100]                       | 15                | 20 kHz                      |
| <b>CDN A120</b>      |         | 150 kHz to 230 (300) MHz | CDN AF12 for unscreened unbalanced 12 lines application                            | 25 pin D-sub female        | 1             | ■                                 | ■                                 |  |  | 12              | 0.2                              | 63 [100]                        | 15                | 20 kHz                      |

| Product              | Drawing   | Frequency range          | CDN type and application                                | EUT / AE connector type | CDN case size | Immunity testing IEC/EN 61000-4-6 | Immunity testing 10 kHz to 80 MHz | Emission testing CISPR 15 (CDN method) | Emission testing CISPR 22/32 (ISN/AAN) | Number of lines | Max. EUT current in A (50/60 Hz) | Max. EUT voltage in V AC* [DC]* | Max. RF voltage V | 3 dB bandwidth (sinusoidal) |
|----------------------|---|--------------------------|---|-------------------------|---------------|-----------------------------------|-----------------------------------|--|--|-----------------|----------------------------------|---------------------------------|-------------------|-----------------------------|
| <b>CDN A150</b>      |    | 150 kHz to 230 (300) MHz | CDN AF15 for unscreened unbalanced 15 lines application | 25 pin D-sub female     | 1             | ■                                 | ■                                 |  |  | 15              | 0.2                              | 63 [100]                        | 15                | 20 kHz                      |
| <b>CDN CAN-U4</b>    |    | 150 kHz to 230 MHz       | CDN for unscreened CAN bus with 4 lines                 | 9 pin D-sub female      | 1             | ■                                 |                                   |  |  | 4               | 3/0.5                            | 48 [48]                         | 20                | 30 MHz                      |
| <b>CDN CAN-U4-10</b> |    | 10 kHz to 80 MHz         | CDN for unscreened CAN bus with 4 lines                 | 9 pin D-sub female      | 1             | ■                                 |                                   |  |  | 4               | 3/0.5                            | 48 [48]                         | 20                | 30 MHz                      |
| <b>CDN CAN-U5</b>    |    | 150 kHz to 230 MHz       | CDN for unscreened CAN bus with 5 lines                 | 9 pin D-sub female      | 1             | ■                                 |                                   |  |  | 5               | 3/0.5                            | 48 [48]                         | 20                | 30 MHz                      |
| <b>CDN S501A</b>     |   | 150 kHz to 230 MHz       | CDN S1 for coaxial line 50 Ω                            | BNC 50 Ω, female        | 1             | ■                                 |                                   | ■                                      |  | 1               | 0.25                             | 250                             | 20                | 2 GHz                       |
| <b>CDN S501-10</b>   |  | 10 kHz to 80 MHz         | CDN S1 for coaxial line 50 Ω                            | BNC 50 Ω, female        | 1             | ■                                 | ■                                 | ■                                      |  | 1               | 0.25                             | 250                             | 20                | 2 GHz                       |
| <b>CDN S502A</b>     |  | 150 kHz to 230 MHz       | CDN S1 for coaxial line 50 Ω, double screened           | N 50 Ω, female          | 1             | ■                                 |                                   | ■                                      |  | 1               | 0.25                             | 250                             | 20                | 2 GHz                       |
| <b>CDN S751A</b>     |  | 150 kHz to 230 MHz       | CDN S1 for coaxial line 75 Ω                            | BNC 75 Ω, female        | 1             | ■                                 |                                   | ■                                      |  | 1               | 0.25                             | 250                             | 20                | 2 GHz                       |
| <b>CDN S752A</b>     |  | 150 kHz to 230 MHz       | CDN S1 for coaxial line 75 Ω, double screened           | N 75 Ω, female          | 3             | ■                                 |                                   | ■                                      |  | 1               | 0.25                             | 250                             | 20                | 2 GHz                       |
| <b>CDN S200</b>      |  | 150 kHz to 230 MHz       | CDN S2 for 2 wires, screened line                       | XLR, female             | 1             | ■                                 |                                   |  |  | 2               | 0.25                             | 150                             | 20                | 20 kHz                      |
| <b>CDN S400</b>      |  | 150 kHz to 230 MHz       | CDN S4 for 4 wires, screened line                       | 5 pin DIN socket        | 1             | ■                                 |                                   |  |  | 4               | 0.25                             | 34                              | 20                | 20 kHz                      |
| <b>CDN S900</b>      |  | 150 kHz to 230 MHz       | CDN S9 for 9 wires, screened line                       | 9 pin D-sub female      | 1             | ■                                 |                                   |  |  | 9               | 0.25                             | 150                             | 20                | 20 kHz                      |
| <b>CDN S900-10</b>   |  | 10 kHz to 80 MHz         | CDN S9 for 9 wires, screened line                       | 9 pin D-sub female      | 1             | ■                                 | ■                                 |  |  | 9               | 0.25                             | 150                             | 20                | 20 kHz                      |
| <b>CDN S900m</b>     |  | 150 kHz to 230 MHz       | CDN S9 for 9 wires, screened line                       | 9 pin D-sub male        | 1             | ■                                 |                                   |  |  | 9               | 0.25                             | 150                             | 20                | 20 kHz                      |

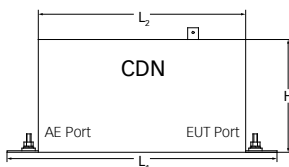
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| Product             | Drawing   | Frequency range    | CDN type and application  | EUT /AE connector type                             | CDN case size | Immunity testing IEC/EN 61000-4-6 | Immunity testing 10 kHz to 80 MHz | Emission testing CISPR 15 (CDN method) | Emission testing CISPR 22/32 (ISN/AAN) | Number of lines | Max. EUT current in A (50/60 Hz) | Max. EUT voltage in V AC* [DC]* | Max. RF voltage V | 3 dB bandwidth (sinusoidal) |
|---------------------|---|--------------------|---|--|---------------|-----------------------------------|-----------------------------------|--|--|-----------------|----------------------------------|---------------------------------|-------------------|-----------------------------|
| <b>CDN S150</b>     |    | 150 kHz to 230 MHz | CDN S15 for 15 wires, screened line   | 15 pin D-sub female                                | 1             | ■                                 |                                   |  |  | 15              | 0.25                             | 150                             | 20                | 20 kHz                      |
| <b>CDN S250</b>     |    | 150 kHz to 230 MHz | CDN S25 for 25 wires, screened line   | 25 pin D-sub female                                | 1             | ■                                 |                                   |  |  | 25              | 0.25                             | 150                             | 20                | 20 kHz                      |
| <b>CDN S250-10</b>  |    | 10 kHz to 80 MHz   | CDN S25 for 25 wires, screened line   | 25 pin D-sub female                                | 1             | ■                                 | ■                                 |  |  | 25              | 0.25                             | 150                             | 20                | 20 kHz                      |
| <b>CDN ST08A</b>    |    | 150 kHz to 230 MHz | CDN for screened and balanced telecommunication lines, Ethernet 10BaseT, 100BaseT, 1000BaseT, 10GBaseT and others | RJ45 socket  | 1             | ■                                 |                                   | ■                                      |  | 8               | 1                                | 100                             | 20                | 250 MHz                     |
| <b>CDN ST08-10</b>  |   | 10 kHz to 80 MHz   | CDN for screened and balanced telecommunication lines, Ethernet 10BaseT, 100BaseT, 1000BaseT, 10GBaseT and others | RJ45 socket  | 1             | ■                                 | ■                                 | ■                                      |  | 8               | 1                                | 100                             | 20                | 250 MHz                     |
| <b>CDN USB/C</b>    |  | 150 kHz to 230 MHz | CDN USB for central devices, USB up to 2.0  | AE: USB "A" type<br>EUT: USB "B" type              | 1             | ■                                 |                                   |  |  | 4               | 1                                | 100                             | 20                | 80 MHz                      |
| <b>CDN USB/C-10</b> |  | 10 kHz to 80 MHz   | CDN USB for central devices, USB up to 2.0  | AE: USB "A" type<br>EUT: USB "B" type              | 1             | ■                                 | ■                                 |  |  | 4               | 1                                | 100                             | 20                | 80 MHz                      |
| <b>CDN USB/P</b>    |  | 150 kHz to 230 MHz | CDN USB for peripheral devices, USB up to 2.0   | AE: USB "B" type<br>EUT: USB "A" type              | 1             | ■                                 |                                   |  |  | 4               | 1                                | 100                             | 20                | 80 MHz                      |
| <b>CDN USB/P-10</b> |  | 10 kHz to 80 MHz   | CDN USB for peripheral devices, USB up to 2.0   | AE: USB "B" type<br>EUT: USB "A" type              | 1             | ■                                 | ■                                 |  |  | 4               | 1                                | 100                             | 20                | 80 MHz                      |
| <b>CDN USB3.0</b>   |  | 150 kHz to 230 MHz | CDN USB, up to 3.0  | AE: USB "A" type<br>EUT: USB "A" type              | 1             | ■                                 |                                   |  |  | 9               | 1                                | 100                             | 20                | -                           |
| <b>CDN HDMI</b>     |  | 150 kHz to 230 MHz | CDN for high speed HDMI with HDCP, HEC (Ethernet), ARC and DSC  | HDMI socket  | 3             | ■                                 |                                   |  |  | 19              | -                                | 100                             | 20                | -                           |
| <b>CDN T2-10</b>    |  | 10 kHz to 300 MHz  | T2 for 1 unscreened balanced wire pair  | 1 mm banana sockets                                | 2             | ■                                 | ■                                 | ■                                      |  | 2               | 0.4                              | 63                              | 20                | 100 MHz                     |
| <b>CDN T210A</b>    |  | 150 kHz to 80 MHz  | T2 for 1 unscreened balanced wire pair, pin arrangement customer specific   | 25 pin D-sub female with adapter to RJ11: ADR T210 | 2             | ■                                 |                                   |  |  | 2               | 0.4                              | 63                              | 15                | 100 MHz                     |
| <b>CDN T240A</b>    |  | 150 kHz to 80 MHz  | T2 for 1 unscreened balanced wire pair, pin arrangement customer specific   | 25 pin D-sub female with adapter to RJ45: ADR T240 | 2             | ■                                 |                                   |  |  | 2               | 0.4                              | 63                              | 15                | 100 MHz                     |

| Product          | Drawing  | Frequency range   | CDN type and application  | EUT /AE connector type   | CDN case size                     |                                   |  |  | Number of lines  | Max. EUT current in A (50/60 Hz) | Max. EUT voltage in V AC* [DC]* | Max. RF voltage V | 3 dB bandwidth (sinusoidal) |
|------------------|--|-------------------|---|--|-----------------------------------|-----------------------------------|--|--|------------------|----------------------------------|---------------------------------|-------------------|-----------------------------|
|                  |  |                   |   |  | Immunity testing IEC/EN 61000-4-6 | Immunity testing 10 kHz to 80 MHz | Emission testing CISPR 15 (CDN method) | Emission testing CISPR 22/32 (ISN/AAN) |                  |                                  |                                 |                   |                             |
| <b>CDN T246A</b> | CDN T200A<br>   | 150 kHz to 80 MHz | T2 for 1 unshielded balanced wire pair, German Telecom, Siemens, UP0  | 25 pin D-sub female with adapter to RJ45: ADR T246                         | 2                                 | ■                                 |  |  | 2                | 0.4                              | 63                              | 15                | 100 MHz                     |
| <b>CDN T4-10</b> | CDN T4-10<br>   | 10 kHz to 300 MHz | T4 for 2 unshielded balanced wire pairs   | 1 mm banana sockets  | 2                                 | ■                                 | ■                                      | ■                                      | 4                | 0.4                              | 63                              | 20                | 100 MHz                     |
| <b>CDN T410A</b> | CDN T400A<br>   | 150 kHz to 80 MHz | T4 for up to 2 unshielded balanced wire pairs, pin arrangement customer specific                                    | 25 pin D-sub female with adapter to RJ11: ADR T410                         | 2                                 | ■                                 |  |  | 2<br>4           | 0.4                              | 63                              | 15                | 100 MHz                     |
| <b>CDN T411A</b> | CDN T400A<br>   | 150 kHz to 80 MHz | T4 for up to 2 unshielded balanced wire pairs, German Telecom, US standard  | 25 pin D-sub female with adapter to RJ11: ADR T411                         | 2                                 | ■                                 |  |  | 2<br>4           | 0.4                              | 63                              | 15                | 100 MHz                     |
| <b>CDN T440A</b> | CDN T400A<br>  | 150 kHz to 80 MHz | T4 for up to 2 unshielded balanced wire pairs, pin arrangement customer specific                                    | 25 pin D-sub female with adapter to RJ45: ADR T440                         | 2                                 | ■                                 |  |  | 2<br>4           | 0.4                              | 63                              | 15                | 100 MHz                     |
| <b>CDN T442A</b> | CDN T400A<br> | 150 kHz to 80 MHz | T4 for up to 2 unshielded balanced wire pairs, ISDN basic rate access S0  | 25 pin D-sub female with adapter to RJ45: ADR T442                         | 2                                 | ■                                 |  |  | 2<br>4           | 0.4                              | 63                              | 15                | 100 MHz                     |
| <b>CDN T443A</b> | CDN T400A<br> | 150 kHz to 80 MHz | T4 for up to 2 unshielded balanced wire pairs, ISDN primary rate access (2Mbps)                                     | 25 pin D-sub female with adapter to RJ45: ADR T443                         | 2                                 | ■                                 |  |  | 2<br>4           | 0.4                              | 63                              | 15                | 100 MHz                     |
| <b>CDN T444A</b> | CDN T400A<br> | 150 kHz to 80 MHz | T4 for up to 2 unshielded balanced wire pairs, Ethernet 10BaseT, 100BaseT   | 25 pin D-sub female with adapter to RJ45: ADR T444                         | 2                                 | ■                                 |  |  | 2<br>4           | 0.4                              | 63                              | 15                | 100 MHz                     |
| <b>CDN T445A</b> | CDN T400A<br> | 150 kHz to 80 MHz | T4 for up to 2 unshielded balanced wire pairs, ATM, FDDI  | 25 pin D-sub female with adapter to RJ45: ADR T445                         | 2                                 | ■                                 |  |  | 2<br>4           | 0.4                              | 63                              | 15                | 100 MHz                     |
| <b>CDN T4A</b>   | CDN T400A<br> | 150 kHz to 80 MHz | T4 for up to 2 unshielded balanced wire pairs with 5 adapter sets   | 25 pin D-sub female with adapter to RJxx: ADR T411, T442, T443, T444, T445 | 2                                 | ■                                 |  |  | 2<br>4           | 0.4                              | 63                              | 15                | 100 MHz                     |
| <b>CDN T8-10</b> | CDN T8-10<br> | 10 kHz to 230 MHz | T8 for 4 unshielded balanced wire pairs, Ethernet 1000BaseT   | RJ45 socket  | 2                                 | ■                                 | ■                                      |  | 8                | 0.4                              | 63                              | 15                | 100 MHz                     |
| <b>CDN T8</b>    | CDN T800<br>  | 150 kHz to 80 MHz | T8 for up to 4 unshielded balanced wire pairs with 2 adapter sets, Ethernet 10BaseT, 100BaseT, 1000BaseT and others | 25 pin D-sub female with adapter to RJxx: ADR T811, T800                   | 2                                 | ■                                 |  |  | 2<br>4<br>6<br>8 | 0.4                              | 63                              | 15                | 100 MHz                     |

### CDN case size



| CDN dimensions in mm  | CDN case size 1<br>e.g. CDN M016 | CDN case size 2<br>e.g. CDN T | CDN case size 3<br>e.g. CDN HDMI | CDN case size 4<br>e.g. CDN Mx 32A | CDN case size 5<br>e.g. CDN Mx 100A |
|-----------------------|----------------------------------|-------------------------------|----------------------------------|------------------------------------|-------------------------------------|
| Length L <sub>1</sub> | 240                              | 110                           | 285                              | 470                                | 470                                 |
| Length L <sub>2</sub> | 180                              | 102                           | 235                              | 420                                | 420                                 |
| Width                 | 100                              | 105                           | 100                              | 160                                | 200                                 |
| Height                | 100                              | 55                            | 100                              | 160                                | 200                                 |

# COUPLING DECOUPLING NETWORK FOR EMISSION MEASUREMENT (CDNE)



CISPR 16-2-1's most recent edition 3.0 specifies a new test method which allows the use of a coupling/decoupling network for emission measurement (CDNE) to measure disturbance voltages in the 30 to 300 MHz frequency range. This method enables EUTs to be connected directly to the CDNE, allowing a single conducted emission measurement to replace a lengthy radiated emission test. Product standards may use this fast, convenient and economical alternative.

CISPR 15 offers an independent method for measurement of radio disturbance characteristics of electrical lighting equipment. This method specifies the use of a coupling/decoupling network (CDN) as defined in IEC 61000-4-6 with an extended frequency range 30 to 300 MHz. Using a CDNE as described in CISPR 16-1-2 instead of CDN offers improved measurement reproducibility due to standard's requirements for more restrictive limits of asymmetrical impedance, phase angle, symmetrical impedance and internal attenuation.

The Teseq CDNEs are compliant with the actual versions of CISPR 16-1-2, CISPR 16-2-1 and CISPR 15's CDN method.

| Drawing | Frequency range   | CDN type and application | EUT/AE connector type         | Immunity testing | Emission testing CISPR 15 | Emission testing draft CISPR 16-1-2 | Number of lines | Max. EUT current in A | Max. EUT voltage in V for AC* | Transducer factor in dB | Internal attenuator |
|---------|-------------------|--------------------------|-------------------------------|------------------|---------------------------|-------------------------------------|-----------------|-----------------------|-------------------------------|-------------------------|---------------------|
|         |                   |                          |                               |                  |                           |                                     |                 |                       |                               |                         |                     |
|         | 30 MHz to 300 MHz | M2, L, N or DC           | 4 mm safety banana sockets    | -                | ■                         | ■                                   | 2               | 10                    | 300 (520)                     | 20                      | ■                   |
|         | 30 MHz to 300 MHz | M3, L, N, PE             | 4 mm safety banana sockets    | -                | ■                         | ■                                   | 3               | 10                    | 300 (520)                     | 20                      | ■                   |
|         | 30 MHz to 300 MHz | M3, L, N, PE             | AE: IEC C14<br>EUT: NEMA 5-15 | -                | ■                         | ■                                   | 3               | 10                    | 125 (125)                     | 20                      | ■                   |

\*) Line to ground voltage, in brackets line to line voltage







## IMPEDANCE STABILIZATION NETWORK (ISN), ASYMMETRIC ARTIFICIAL NETWORK (AAN)

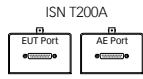
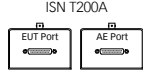
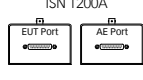
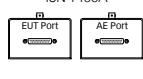
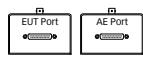
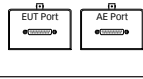
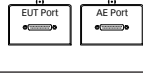



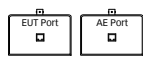


Impedance stabilization networks (ISN, or with CISPR 16-1-2 called AAN: asymmetric artificial network) are defined for measuring of conducted common mode disturbances at information technology equipment (ITE) as required in CISPR 22 and CISPR 32. The ISN is placed between the equipment under test (EUT) and auxiliary equipment (AE) or load which are necessary for the operation of the EUT. The ISN establishes the common-mode termination impedance for the EUT's telecommunications port during measurement and emulates the unsymmetrical contribution (longitudinal conversion loss, LCL) of the connected line. Different ISNs are available in relation to the line category, line numbers and pin-arrangement. The ISN must not affect the normal quality of the wanted symmetrical signal.

The CISPR 16-1-2 gives additional requirements and provides examples and measurements for the networks. The ITU-T recommendations G.117 and O.9 offers the background knowledge for measurements on symmetrical telecommunication lines.

Further the ISNs (with exception ISN T8) can be used as coupling/decoupling network as defined in IEC/EN 61000-4-6 „Immunity to conducted disturbances, induced by radio frequency fields“.

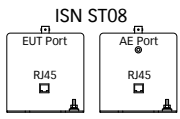
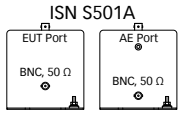
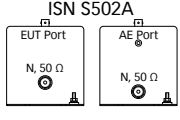
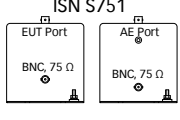
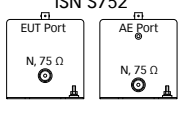
| Cable type             | Number of pairs                                      | Refers to figure in CISPR 32   | Measurement type    | Product  |
|------------------------|--|--|---------------------|--|
| Balanced<br>unscreened | 1 (2 wire)<br>2 (4 wire)<br>3 (6 wire)<br>4 (8 wire) | Figure G.1 to Figure G.3<br>Figure G.2 to Figure G.3<br>Figure G.3<br>Figure G.3 | Voltage             | ISN T<br>           |
| Balanced<br>unscreened | >4   |  | Voltage and current | CVP, CSP<br>        |
| Screened or<br>coaxial | n/a  | Figure G.9 for coaxial<br>Figure G.11 for multi-conductor                        | Voltage             | ISN S<br>ISN ST<br> |
| Screened or<br>coaxial | n/a  |  | Voltage or current  | CVP, CSP<br>        |
| Unbalanced             | n/a  |  | Voltage and current | CVP, CSP<br>        |
| AC Mains               | n/a  | AMN<br>CISPR 16-1-2:2003<br>Figure 4 and Figure 5                                | Voltage             | NNB<br>             |

|                    | Drawing   | Frequency range        | CDN type and application  | EUT / AE connector type | Immunity testing IEC/EN 61000-4-6 | Emission testing CISPR 22/32 | Regarding figure in CISPR 32 | Number of lines  | Changeable adapter wiring | LCL values     | Max. EUT current in A (per wire) | Max. EUT voltage in V for AC / DC | Max. RF voltage in V | 3 dB bandwidth (sinusoidal) |
|--------------------|---|------------------------|---|-------------------------|-----------------------------------|------------------------------|------------------------------|------------------|---------------------------|----------------|----------------------------------|-----------------------------------|----------------------|-----------------------------|
| <b>ISN T2A</b>     |    | 150 kHz to 30 (80) MHz | T2 for 1 unscreened balanced pair with adapter ADS T246 and ADS T2X0  | RJ11<br>RJ45<br>1 mm    | ■                                 | ■                            | G.2                          | 2                | ■                         | 55/40<br>65/50 | 0.6                              | 63/<br>100                        | 15                   | 100<br>MHz                  |
| <b>ISN T216A</b>   |    | 150 kHz to 30 (80) MHz | T2 for 1 unscreened balanced pair, UP0 with RJ11, with adapter ADS T216   | RJ11                    | ■                                 | ■                            | G.2                          | 2                |                           | 55/40<br>65/50 | 0.6                              | 63/<br>100                        | 15                   | 100<br>MHz                  |
| <b>ISN T246A</b>   |    | 150 kHz to 30 (80) MHz | T2 for 1 unscreened balanced pair, UP0 with RJ45, with adapter ADS T246   | RJ45                    | ■                                 | ■                            | G.2                          | 2                |                           | 55/40<br>65/50 | 0.6                              | 63/<br>100                        | 15                   | 100<br>MHz                  |
| <b>ISN T4A</b>     |    | 150 kHz to 30 (80) MHz | T4 for up to 2 unscreened balanced pairs, with adapter ADS T411, T442, T443, T444 and T4X0                                  | RJ11<br>RJ45<br>1 mm    | ■                                 | ■                            | G.2                          | 2<br>4           | ■                         | 55/40<br>65/50 | 0.6                              | 63/<br>100                        | 15                   | 100<br>MHz                  |
| <b>ISN T411A</b>   |   | 150 kHz to 30 (80) MHz | T4 for up to 2 unscreened balanced pairs, German Telecom, US standard, with adapter ADS T411                                | RJ11                    | ■                                 | ■                            | G.2                          | 2<br>4           |                           | 55/40<br>65/50 | 0.6                              | 63/<br>100                        | 15                   | 100<br>MHz                  |
| <b>ISN T442A</b>   |  | 150 kHz to 30 (80) MHz | T4 for up to 2 unscreened balanced pairs, ISDN basic rate access S0, with adapter ADS T442                                  | RJ45                    | ■                                 | ■                            | G.2                          | 2<br>4           |                           | 55/40<br>65/50 | 0.6                              | 63/<br>100                        | 15                   | 100<br>MHz                  |
| <b>ISN T443A</b>   |  | 150 kHz to 30 (80) MHz | T4 for up to 2 unscreened balanced pairs, ISDN primary rate access (2Mbps), with ADS T443                                   | RJ45                    | ■                                 | ■                            | G.2                          | 2<br>4           |                           | 55/40<br>65/50 | 0.6                              | 63/<br>100                        | 15                   | 100<br>MHz                  |
| <b>ISN T444A</b>   |  | 150 kHz to 30 (80) MHz | T4 for up to 2 unscreened balanced pairs, Ethernet 10BaseT, 100BaseT, with adapter ADS T444                                 | RJ45                    | ■                                 | ■                            | G.2                          | 2<br>4           |                           | 55/40<br>65/50 | 0.6                              | 63/<br>100                        | 15                   | 100<br>MHz                  |
| <b>ISN T4X0A</b>   |  | 150 kHz to 30 (80) MHz | T4 for up to 2 unscreened balanced pairs, with changeable adapter ADS T4X0  | RJ11<br>RJ45<br>1 mm    | ■                                 | ■                            | G.2                          | 2<br>4           | ■                         | 55/40<br>65/50 | 0.6                              | 63/<br>100                        | 15                   | 100<br>MHz                  |
| <b>ISN T8</b>      |  | 150 kHz to 30 MHz      | T8 for up to 4 unscreened balanced pairs, Ethernet 10BaseT, 100BaseT, 1000 BaseT and others, with adapter ADS T800 and T8X0 | RJ11<br>RJ45<br>1 mm    |                                   | ■                            | G.3                          | 2<br>4<br>6<br>8 | ■                         | 55/40<br>65/50 | 0.6                              | 63/<br>100                        |                      | 100<br>MHz                  |
| <b>ISN T8-Cat6</b> |  | 150 kHz to 30 (80) MHz | T8 for up to 4 unscreened balanced pairs, Ethernet 10BaseT, 100BaseT, 1000 BaseT and others                                 | RJ45                    | ■                                 | ■                            | G.3                          | 2<br>4<br>6<br>8 |                           | 75/60          | 0.6                              | 63/<br>100                        | 15                   | 250<br>MHz                  |



### FIX ISN: Option for ISN T series

The magnetic fixture for ISNs (Impedance Stabilization Network) improves the earth connection to steel surfaces as typically used for Faraday cages. Its design provides a constant and stable pressure of the ISN enclosure against the ground plane. The standard CISPR 22/ 32 allows to place the ISNs also to a vertical ground plane which can be done easily with the use of FIX ISN.

|                  | Drawing   | Frequency range    | CDN type and application  | EUT / AE connector type | Immunity testing IEC/EN 61000-4-6 | Emission testing CISPR 22/32 | Regarding figure in CISPR 32 | Number of lines | Changeable adapter wiring | LCL values | Max. EUT current in A (per wire) | Max. EUT voltage in V for AC / DC | Max. RF voltage in V | 3 dB bandwidth (sinusoidal) |
|------------------|---|--------------------|---|-------------------------|-----------------------------------|------------------------------|------------------------------|-----------------|---------------------------|------------|----------------------------------|-----------------------------------|----------------------|-----------------------------|
| <b>ISN ST08</b>  |    | 150 kHz to 230 MHz | For screened and balanced telecommunication lines, Ethernet 10BaseT, 100BaseT, 1000BaseT, 10GBaseT and others | RJ45                    | ■                                 | ■                            | G.11                         | 8               |                           |            | 1.2                              | 100                               | 20                   | 250 MHz                     |
| <b>ISN S501A</b> |    | 150 kHz to 230 MHz | For coaxial telecommunication lines with 50 Ω   | BNC                     | ■                                 | ■                            | G.9                          | 1               |                           |            | 0.25                             | 250                               | 20                   | 2 GHz                       |
| <b>ISN S502A</b> |    | 150 kHz to 230 MHz | For coaxial telecommunication lines with 50 Ω, double screened  | N                       | ■                                 | ■                            | G.9                          | 1               |                           |            | 0.25                             | 250                               | 20                   | 2 GHz                       |
| <b>ISN S751</b>  |   | 150 kHz to 230 MHz | For coaxial telecommunication lines with 75 Ω   | BNC                     | ■                                 | ■                            | G.9                          | 1               |                           |            | 0.25                             | 250                               | 20                   | 2 GHz                       |
| <b>ISN S752</b>  |  | 150 kHz to 230 MHz | For coaxial telecommunication lines with 75 Ω, double screened  | N                       | ■                                 | ■                            | G.9                          | 1               |                           |            | 0.25                             | 250                               | 20                   | 2 GHz                       |

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CDN selection chart by Teseq® May 2016