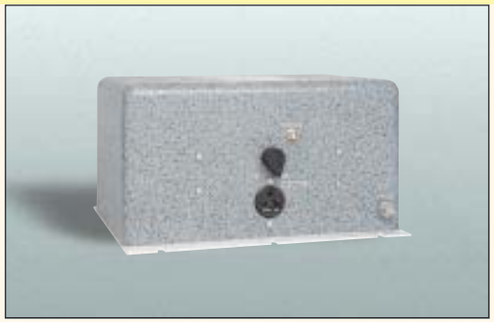
LINE IMPEDANCE STABILIZATION NETWORKS



APPLICATION

When measuring conducted radio interference voltages from active power lines to ground, it is essential to know the line impedance so that repeatable tests can be made by more than one laboratory. Artificial line impedances are specified in MIL-STD-462, V.D.E., C.I.S.P.R., C22.4, NACSEM 5100, ANSI C63.2 and other EMI specifications.

The characteristic impedance of the five microhenry and 50 microhenry LISNs brackets the mean value of power line impedance which has been measured by independent researchers. These two inductance values in parallel with the 50 ohms of the EMI meter fall between the minimum and maximum line impedance values which have been measured. The mean value would be represented by a twenty microhenry inductor in parallel with100 ohms.

DESCRIPTION

The Solar Electronics LISNs use a series inductor between the test sample and the power source to provide the impedance-versus-frequency characteristic. A coaxial connector with d.c. isolation is provided for connection to the associated frequency selective EMI meter. The power source end of the inductor is bypassed to ground.

Due to the large current-carrying capability of some LISNs, it is not always practical to use a switch for changing inductance values. Instead, some models are equipped with a high current pin plug-and-jack combination for quickly connecting and disconnecting a network and substituting another. This nylon insulated pin plug and jack arrangement is a safety feature, well isolated from inadvertent short circuits, providing protection to operating personnel.

Current ratings up to 200 amperes are available in 50 μH styles and 500 amperes in 5 μH styles. See the chart on the following page.

When measurements are made in a shielded room, the LISNs intended for F.C.C. applications will also serve for V.D.E. tests. When operating on an unfiltered power line, the V.D.E. specifications require a filter consisting of 250 microhenry inductor and a capacitor. This filter is included in the 24 ampere LISN, **Type 9348-50-R-24-BNC**, and the 50 ampere LISN, **Type 8602-50-TS-50-N**.

EMI specifications require one LISN in each ungrounded power lead. Even though the neutral is considered "ground," if it is not connected to chassis **inside** the unit under test, the lead must be tested with an LISN. Therefore, use two LISNs in d.c. or single phase a.c. applications, three LISNs for delta-connected three phase circuits, and four LISNs for 'Y' connected three phase circuits.

Explanation of Type Numbers

8602-50-TS-50-N

- 8602 — Basic model number
- 50 — Series inductance, microhenries
- TS — Terminals: TS = Terminal Screw, PJ = Plug and Jack
- 50 — Current rating, amperes
- N — R.F. connector style

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Type Number	Current Amps	Inductance µH	Line/Ground Voltage 50-60 Hz	400 Hz	Case Size*	Circuit	Frequency Range
6330-100-PJ-50-N	50	100	270	130	**#3**	Single	10 KHz- 4 MHz
6330-100-TS-50-N	50	100	270	130	**#3**	Single	10 KHz- 4 MHz
6330-250-PJ-50-N	50	250	270	130	**#3**	Single	8 KHz- 4 MHz
6330-250-TS-50-N	50	250	270	130	**#3**	Single	8 KHz- 4 MHz
6330-600-PJ-50-N	50	600	270	130	**#3**	Single	7.5 KHz- 5 MHz
6330-600-TS-50-N	50	600	270	130	**#3**	Single	7.5 KHz- 5 MHz
6338-5-PJ-50-N	50	5	270	130	**#1**	Single	150 KHz- 65 MHz
6338-5-TS-50-N	50	5	270	130	**#1**	Single	150 KHz- 65 MHz
6338-57-PJ-50-N	50	57	270	130	**#2**	Single	14 KHz- 4 MHz
6338-57-TS-50-N	50	57	270	130	**#2**	Single	14 KHz- 4 MHz
6516-5-TS-10-BNC	10	5	270	130	**#5**	Single	150 KHz- 65 MHz
6516-57-TS-10-BNC	10	57	270	130	**#6**	Single	14 KHz- 4 MHz
7225-1	10	650	270	130	**#1**	Single	10 KHz-400 MHz (useable up to 1 GHz)
7333-5-PJ-50-N	50	5	500	240	**#1**	Single	150 KHz- 65 MHz
7333-5-TS-50-N	50	5	500	240	**#1**	Single	150 KHz- 65 MHz
7333-57-PJ-50-N	50	57	500	240	**#2**	Single	14 KHz- 4 MHz
7333-57-TS-50-N	50	57	500	240	**#2**	Single	14 KHz- 4 MHz
8012-50-R-24-BNC	24	50	135	N/A	**#1**	Dual	10 KHz- 50 MHz
8028-50-TS-24-BNC	24	50	270	130	**#1**	Single	10 KHz- 50 MHz
8116-50-PJ-100-N	100	50	270	130	**#3‡**	Single	10 KHz- 30 MHz
8116-50-TS-100-N	100	50	270	130	**#3‡**	Single	10 KHz- 50 MHz
8116-100-PJ-100-N	100	100	270	130	**#3‡**	Single	10 KHz- 4 MHz
8116-100-TS-100-N	100	100	270	130	**#3‡**	Single	10 KHz- 4 MHz
8116-250-PJ-100-N	100	250	270	130	**#3‡**	Single	8 KHz- 4 MHz
8116-250-TS-100-N	100	250	270	130	**#3‡**	Single	8 KHz- 4 MHz
8309-5-PJ-100-N	100	5	500	240	**#3**	Single	150 KHz- 65 MHz
8309-5-TS-100-N	100	5	500	240	**#3**	Single	150 KHz- 65 MHz
8328-50-PJ-50-N	50	50	270	130	**#3**	Single	10 KHz- 50 MHz, 0.1µf coupling capacitor
8328-50-TS-50-N	50	50	270	130	**#3**	Single	10 KHz- 50 MHz, 0.1µf coupling capacitor

***Case Sizes (w x h x l)**
Add 3" (7.62 cm) for Base Plate
‡ With 50 or 60 Hz Ventilating Fan; add 7.09" (18.00 cm)
#1: 4.5" x 4.5" x 9.25" (11.43 cm x 11.43 cm x 23.5 cm)
#2: 7.0" x 7.0" x 8.25" (17.78 cm x 11.78 cm x 24.13 cm)
#3: 10.06" x 9.0" x 13.12" (25.72 cm x 22.86 cm x 33.34 cm)
#4: 7.53" x 7.63" x 18.97" (19 cm x 19.43 cm x 48.26 cm)
#5: 3.12" x 1.75" x 3.87" (7.94 cm x 4.44 cm x 9.84 cm)
#6: 2.75" x 2.45" x 5.7" (6.98 cm x 6.22 cm x 14.48 cm)
#7: 13.06" x 7.0" x 10.06" (33.20 cm x 17.78 cm x 25.55 cm)

LINE IMPEDANCE STABILIZATION NETWORKS (cont.)

Type Number	Current Amps	Inductance µH	Line/Ground Voltage 50-60 Hz	400 Hz	Case Size*	Circuit	Frequency Range
8410-250-R-24	24	250	270	130	**#1**	Dual	250µH choke network with AC receptacle for use with 8012-( ) and 9252-( ) for VDE applications
8602-50-PJ-50-N	50	50	270	130	**#4**	Single	10 KHz- 50 MHz w/ 250µH choke
8602-50-TS-50-N	50	50	270	130	**#4**	Single	10 KHz- 50 MHz w/ 250µH choke
8610-50-PJ-100-N	100	50	500	240	**#3‡**	Single	10 KHz- 30 MHz
8610-50-TS-100-N	100	50	500	240	**#3‡**	Single	10 KHz- 30 MHz
8611-50-TS-10-N	10	50	270	130	**#2**	Single	10 KHz- 30 MHz w/ 250µH choke
8615-2-TS-100-N	100	2	270	130	**#1**	Single	1 MHz- 1 GHz
8616-5-PJ-200-N	200	5	270	130	**#3‡**	Single	150 KHz- 65 MHz
8616-5-TS-200-N	200	5	270	130	**#3‡**	Single	150 KHz- 65 MHz
8616-50-PJ-200-N	200	50	270	130	**#3‡**	Single	10 KHz- 50 MHz
8616-50-TS-200-N	200	50	270	130	**#3‡**	Single	10 KHz- 50 MHz
8902-5-TS-500-N	500	5	500	240	**#4**	Single	150 KHz- 1 GHz
8905-50-TS-50-N	50	50	270	130	**#3**	Single	10 KHz-200 MHz
8907-250-TS-24	24	250	270	130	**#1**	Dual	250µH choke network with binding posts. For use with two 8028-( ) for VDE applications
9106-1300-N-10-N	10	1300	270	130	**#1**	Single	10 KHz- 1 GHz
9117-5-PJ-50-N	50	5	500	240	**#1**	Single	150 KHz- 1 GHz
9117-5-TS-50-N	50	5	500	240	**#1**	Single	150 KHz- 1 GHz
9233-50-PJ-50-N	50	50	270	130	**#3**	Single	10 KHz- 50 MHz, 0.25µF coupling capacitor
9233-50-TS-50-N	50	50	270	130	**#3**	Single	10 KHz- 50 MHz, 0.25µF coupling capacitor
9247-50-TS-50-N	50	50	500	240	**#3**	Single	10 KHz- 50 MHz, 0.1µF coupling capacitor
9252-50-R-24-BNC	24	50	270	130	**#7**	Dual	10 KHz- 50 MHz, 0.25µF coupling capacitor
9322-50-R-10-BNC	10	50	270	130	**#7**	Dual	10 KHz- 50 MHz
9331-50-PJ-200-N	200	50	500	240	**#3‡**	Single	10 KHz- 50 MHz
9331-50-TS-200-N	200	50	500	240	**#3‡**	Single	10 KHz- 50 MHz
9345-5-R-10-BNC	10	5	135	N/A	**#1**	Dual	150 KHz- 65 MHz
9348-50-R-24-BNC	24	50	270	130	**#7**	Dual	10 KHz- 50 MHz with 250µH choke

***Case Sizes (w x h x l)**
Add 3" (7.62 cm) for Base Plate
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#1: 4.5" x 4.5" x 9.25" (11.43 cm x 11.43 cm x 23.5 cm)
#2: 7.0" x 7.0" x 8.25" (17.78 cm x 11.78 cm x 24.13 cm)
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9351-5-TS-200-N	200	5	500	240	**#3‡**	Single	100 KHz- 1 GHz, 150 Ω impedance
9403-5-TS-10-BNC	10	5	270	130	**#5**	Single	150 KHz- 65 MHz
9408-50-R-24-BNC	24	50	500	240	**#7**	Dual	10 KHz- 50 MHz
9409-50-R-24	24	50	135	N/A	**#2**	Dual	6 Output Auxiliary, no RF connector
9509-50-R-24-BNC	24	50	500	240	**#7**	Dual	10 KHz- 50 MHz w/ 250µH choke
9517-50-R-10-BNC	10	50	270	130	**#7**	Dual	10 KHz- 50 MHz w/ 250µH choke
9608-50-BP-10-BNC	10	50	500	240	**#7**	Dual	10 KHz- 50 MHz, binding posts, no switch
9615-50-R-25-BNC	25	50	270	130	**#7**	Dual	10 KHz- 30 MHz, air coil
9622-50-BP-10-BNC	10	50	500	240	**#1**	Single	10 KHz- 50 MHz
9623-50-TS-25-BNC	25	50	270	130	**#1**	Single	10 KHz- 30 MHz, air coil
9629-50-TS-25-BNC	25	50	500	240	**#1**	Single	10 KHz- 30 MHz
9632-50-TS-50-N	50	50	270	130	**#3**	Single	10 KHz- 50 MHz, high wattage for GM spec
9702-50-TS-100-N	100	50	270	130	call	Single	10 KHz- 50 MHz w/ 250µH choke
9706-5-TS-250-N	250	5	270	130	**#3**	Single	150 KHz- 65 MHz
9845-50-BP-10-BNC	10	50	135	N/A	**#1**	Dual	10 KHz- 30 MHz, binding posts, no switch
9847-50-TS-50-N	50	50	270	130	**#3**	Single	with 20µF capacitor
9857-50-BP-24-BNC	24	50	135	120	**#1**	Dual	10 KHz- 50 MHz, binding posts, no switch
9861-50-BP-24-BNC	24	50	270	130	**#7**	Dual	10 KHz- 50 MHz, binding posts, no switch
9867-5-TS-50-N	50	5	270	130	**#2**	Single	10 KHz- 400 MHz w/ 10µF capacitor
9911-50-R-10-BNC	10	50	135	N/A	**#1**	Dual	10 KHz- 50 MHz
9913-50-TS-10-BNC	10	50	270	130	**#7**	Dual	10 KHz- 50 MHz, 6-32 threaded terminals
9924-5-TS-100	100	5	270	130	**#3**	Isolated	100 KHz- 100 MHz (ISO 7637-2)

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