CURRENT PROBES

- **For Standards Testing and Pre-compliance Applications**
- **Measures RF Current Without Direct Connection**

ETS-Lindgren's Current Probes are a diagnostic tool for cable common mode current sources of radiated emissions and as measurement of cable common mode coupled currents during radiated susceptibility testing.

Model 91550-1 and 91550-1L Current Probes have an extremely broad frequency range covering 20 Hz to 100 MHz. The L version current probe has a calibration available down to 20 Hz, which makes it an ideal test ancillary equipment for such test methods as MIL-STD-462 CEO1 and RSO1. In particular, the newer CEO1 limits which are dependent on EUT current/voltage requirements are more stringent than the older fixed limit CEO1 requirement. Coupled with the widespread use of microwave spectrum analyzers (Keysight PXA). Use of the 91197-1 current probes with the Keysight PXA allows current measurements below 80 dBA at 20 Hz. This is more than 6 dB below MIL-STD-461 and related conducted emission limits, including common mode limits on submarines.

The 91550-1 and 91550-1L have 3.18 cm (1.25 in) window, making them suitable for measurements on most power cables (AWG 4/0 cable, good for several hundred Amps, is 12.7 mm (0.5 in) diameter, exclusive of insulation). The L version current probes have a calibration available down to 20 Hz. Probe saturation current is compatible with the current carrying capacity of wires placed in its window. In those cases where the window is not large enough, our 93686-1 probe has similar sensitivity with a 6.65 cm (2.62 in) window.

Model 93686-8 Current Probes have a large 6.65 cm (2.625 in) window diameter, making it very versatile. The 93686-8 Current Probe is designed to perform current conducted measurement in the frequency range 10 kHz to 200 MHz, including applications requiring the measurement of low duty cycle, high level pulsed currents. The larger diameter of this family is extremely useful when making common mode measurements as per MIL-STD-1399, Section 390, or for diagnostic purposes. This common made test requires both EUT feeder and return to be routed through the probe window.

The 6.65 cm (2.62 in) window makes the 93686-8 probe suitable for measurements on almost any size power or signal cable (AWG 4/0 cable, good for several hundred amps, is 12.7 mm (0.5 in) diameter, exclusive of insulation). Probe saturation current is compatible with the current carrying capacity of wires placed in its window. (Some of the models have lower saturation limits with 400 Hz power.)

Model 94111-1 and 94111-1L Current Probes are capable of making measurements up to 1 GHz. The 94111-1 is an RF current probe for cable common mode current sources of radiated emissions and as measurement of cable common mode coupled currents during radiated susceptibility testing.

The 3.18 cm (1.25 in) window makes the 94111 series probes suitable for measurements on most power cables (AWG 4/0 cable, good for several hundred amps, is 12.7 mm (0.5 in) diameter, exclusive of insulation). The L version current probes have a calibration available down to 20 Hz. Probe saturation current is compatible with the current carrying capacity of wires placed in its window.

Model 94430-1 Current Probe is a small-sized, lightweight probe featuring a 1.90 cm (0.75 in) window, and covers the frequency range of 10 kHz to 250 MHz. This probe is particularly suitable where permanent or semi-permanent installation of current probes is desired. Such applications might be 6 dB or 20 dB safety margin demonstrations during system-level EMC tests, performed on complete weapon system planes, ground vehicles, or ships. Another application is sensing field-to-cable coupled common mode currents during a low level swept cw scan of a commercial aircraft undergoing FAA certification to the High Intensity Radiated Field RF electromagnetic environment. Probe saturation current is compatible with the current carrying capacity of wires placed in its window.

Technical Specifications

Electrical				
Model	91550-1 and 1L	93686-8	94111-1 and 1L	94430-1
Frequency Minimum	10 kHz	10 kHz	1 MHz	10 kHz
Frequency Maximum	100 MHz	200 MHz	1000 MHz	250 MHz
Output Load Impedance	50 +/- j0	50 +/- j0	50 +/- j0	50 +/- j0
Maximum Primary Current DC - 60 Hz 400 Hz Pulse RF(CW)	 350 A 350 A 100 A 42 A	 300 A 300 A 62 A 62 A	 200 A 200 A 50 A 20 A	 200 A 200 A 70 A 16 A
Trasnfer Impedance	5	8Ω	1–6Ω	6Ω
Physical				
Outside Diameter	8.26 cm (3.25 in)	13.97 cm (5.50 in)	8.26 cm (3.25 in)	5.72 cm (2.25 in)
Window Diameter	3.18 cm (1.25 in)	6.65 cm (2.62 in)	3.18 cm (1.25 in)	1.91 cm (0.75 in)
Width	7.29 cm (2.87 in)	5.38 cm (2.12 in)	3.56 cm (1.40 in)	2.54 cm (1.00 in)
Weight	0.6 kg (1.32 lb)	2.27 kg (5.00 lb)	0.43 kg (0.95 lb)	0.18 kg (0.40 lb)