

2 / 10 / 50 Turn Precision Clamp Coil Adapter EA002



- Calibrates Clamp Meters up to 1000Amps
- 2 / 10 / 50 Turn Coils
- High Accuracy Balanced Design
- Wide range of clamp sizes covered
- Complete with alignment table & connection leads

Designed for the calibration of both wound (AC only) & Magnetic field (hall effect) AC/DC clamp meters the Transmille current coil offers several unique features built in a robust construction.

Theory of Operation

The coil effectively multiplies the current produced by the calibrator by the number of turns of the coil, e.g. 2, 10, and 50 with the Transmille coil. The principle is each turn of the coil produces a magnetic field proportional to the current flowing in it. If you take 50 wires all side by side with the same current flowing in the same direction the magnetic field for each turn of wire will add together and produce a magnetic field 50 times stronger, e.g. the same magnetic field as one wire with 50 times the current flowing in it. By using a 50 turn coil it is possible to calibrate clamp meters up to 1000 Amps without having to actually generate more than 20 Amps (available from the 3000 Series calibrators). Clamp meters up to 3000 Amps can be calibrated when using Transmille's 50 Amp transconductance amplifier.

High Accuracy Design

Clamp meters can measure current by using the invisible magnetic field generated round any conductor carrying a current. The degree of magnetic coupling between the field produced by the conductor and the jaws of the clamp meter varies due to the position of the conductor within the jaws - this changes the current reading. Transmille's coil is designed to immerse both jaws of the clamp meter in

the magnetic field while allowing the 'gap' or opening where magnetic flux will escape to protrude through the coil and stay out of the strongest part of the field. This makes the reading less dependent on the position of the clamp within the coil and also the quality of the jaw closing, allowing greater confidence in the calibration.



Calculating Clamp Meter Accuracy.

There are two contributions to the total accuracy which should be taken into account when calibrating clamp meters using a coil. The first is the accuracy of the current produced by the calibrator, the second is the coupling between the coil and clamp meter. These must be combined using a *root sum of the squares*. Empirical tests made on a wide range of clamp meters calibrated by Transmille at its laboratory have shown that *toroidal wound current transformer* type clamps typically exhibit better performance and will give coupling errors of 0.2% and *hall effect devices* slightly higher at around 0.4%.

Innovative Closed Construction Design

Three coils in one provide the ability to calibrate a wide range of coils, from small lower clamps down to 10mm jaw diameter to larger 2000A clamps. The low inductance, low resistance properties allow the calibrators to easily drive the coil, giving plenty of overhead for calibrating older clamps. The coils are fully enclosed in a strong, robust and compact plastic enclosure preventing mechanical damage. This rugged design is ideal for using the coil on-site and in harsh environments.



2 Turn Coil
Minimum 10mm inside jaw diameter.



10 Turn Coil
Minimum 10mm inside



50 Turn Coil
Minimum 25.4mm inside jaw diameter.