

Instruction Manual
**Magnetic Field Emission
Loop Generating Coil**

Model 7603



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WARRANTY

The Electro-Mechanics Company (EMCO) warrants that our products are free from defects in materials and workmanship for a period of two years from the date of shipment. If you notify us of a defect within the warranty period, we will, at our option, either repair or replace those products which prove to be defective. If applicable, we will also recalibrate the product

There will be no charge for warranty services performed at the location we designate. You must however, prepay inbound shipping costs and any duties or taxes. We will pay outbound shipping costs for a carrier of our choice, exclusive of any duties or taxes. You may request warranty services to be performed at your location, but it is our option to do so. If we determine that warranty service can only be performed at your location, you will not be charged for our travel related costs.

This warranty does not apply to:

1. Normal wear and tear of materials
2. Consumable items such as fuses, batteries, etc.
3. Products which have been improperly installed, maintained, or used.
4. Products which have be operated outside of specifications.
5. Products which have been modified without authorization.
6. Calibration of products, unless necessitated by defects.

THIS WARRANTY IS EXCLUSIVE. NO OTHER WARRANTY, WRITTEN OR ORAL, IS EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

THE REMEDIES PROVIDED BY THIS WARRANTY ARE YOUR SOLE AND EXCLUSIVE REMEDIES. IN NO EVENT ARE WE LIABLE FOR ANY DAMAGES WHATSOEVER, INCLUDING BUT NOT LIMITED TO, DIRECT, INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, WHETHER BASED ON CONTRACT, TORT, OR ANY OTHER LEGAL THEORY.

Please contact our Sales Department for a Return Material Authorization Number before shipping equipment to us.

MAGNETIC FIELD GENERATING COIL
EMCO MODEL 7603

DESCRIPTION

The EMCO Model 7603 Magnetic Field Generating Coil is a device to facilitate making magnetic susceptibility tests for qualifying equipment to MIL-STD-461, Method RS01. The Coil is built in rigorous conformance with the description in that specification, and is made of stable materials for long life.

ELECTRICAL

Coil: 10 turns of No. 16 insulated wire wound on nonconducting form.

Useful Frequency Range: 20 Hz to 50 KHz

Self Resonant Frequency: Greater than 100 KHz

Maximum Current: 10 amps short time; 5 amps long time

Coil Constant: 5×10^{-5} tesla/amp at 5cm from wire turns⁴
(1 tesla = 1 weber/sq meter = 10^4 gauss)

MECHANICAL

Connector: 2 banana jacks spaced 0.75 inch apart

Nominal Coil Diameter: 12 cm

Thickness of Coil: 0.3 cm

Weight: 1 lb.

USE OF MODEL 7603

The Model 7603 should be connected to the driving source with leads and terminals appropriate to the anticipated drive current. For a maximum drive, No. 10 AWG wire is suggested. When Method RS01, MIL-STD 461, is being performed a 1 ohm +/-10%, 5-watt resistor should be connected in series with the current drive, and positioned so as to be convenient for connecting an EMI meter across it for monitoring the drive current.

The Model 7603 is designed so that when the surface of the Coil form furthest from the wire turns is resting against the test article, the coil is exactly 5cm from the test article as required in method RS01, MIL-STD 461.

The Coil constant is given by:

$$B = 5 \times 10^{-5} \text{ tesla/amp at 5 cm from wire turns}$$

When the 1 ohm resistor and EMI meter are used, the constant is:

$$B = 5 \times 10^{-5} \text{ tesla/volt}$$