

Section 1

INTRODUCTION

1-1. Scope of This Manual

This publication provides operating and servicing instructions for the **Rod-L Electronics, Inc.** Ground Continuity Test Instruments. (It will refer to Model M25, though the M30, M35, and M10 all operate the same. The model number refers to the amount of current it is capable of outputting.) The manual is divided into six sections.

- Section 1 — Introduction (capabilities and specifications)
- Section 2 — Installation and Operation
- Section 3 — Theory of Operation
- Section 4 — Service and Calibration
- Section 5 — Options
- Section 6 — Parts Lists, Schematics and Diagrams

1-2. Ground Continuity Tester General Description and Test Features

The **Rod-L** Ground Continuity Test Instruments, Models M25, M30, etc., are rugged, self-contained testers designed for both laboratory and production use. Its purpose is to provide a means for evaluating the ground continuity between a unit's chassis and the ground from the AC power-in cord. This ground must be able to effectively shunt any accidental "leakage" current, usually produced by accidental high voltage spikes, to earth ground.

Certification agencies usually require a 1 ampere ground continuity test to ensure that a ground is capable of diverting any leakage current without getting damaged. Several European and Canadian agencies, including B.S.I., V.D.E., and I.E.C., require a 25 ampere ground continuity test.

The Model M25 Ground Continuity Tester applies a 25 ampere current to the DUT (Device Under Test) for a duration of time, preset from 1 second to 90 seconds. The DUT is plugged into the front panel receptacle (or special rear panel connector option.) The total resistance in the ground circuit is measured and displayed on the front panel of the Ground Continuity Tester. Test limits for total resistance are preset by the user via a rear panel control. When the DUT is defective, automatic circuitry turns off the current and meter, turns on a FAIL lamp, and activates an audible alarm. This electronic shutdown circuit turns off the current within 3ms

(two milliseconds) after a fault. These audible and visual alarms must be manually reset at the front panel, or by a Remote Control Option.

Important physical, electrical, and environmental specifications are given in Table 1-1.

1-3. Product Specifications (Table 1-1)

Table 1-1: Model M25 Specifications

Test Voltage and Current

at 0.1 Ω load; 3 VAC RMS, 25 A RMS, 50/60 Hz

Voltage Shutdown

Within 2 milliseconds after a fault or end of test is detected (electronic shut down circuits)

Test Time

1 second to 90 seconds (adjustable)

Initial Turn-On Period

Allow 5 seconds warm-up

Ohm Meter

0 - 0.15 Ω , $\pm 5\%$ F.S. accuracy

Ammeter

Up to 40 amps (user specified) $\pm 5\%$ F.S. accuracy

Input Power

115/230 VAC, 44-66 Hz., 360 watts, max

Environmental Operating Temperature

0° to 50° C, 32° to 122° F

Exterior Color

Mint grey and Olive Grey or Black

Weight

35 lbs (13.5 kg) net

Dimensions

16.75 \times 13.25 \times 5.5 inches (43 \times 34 \times 14 cm)

1-4. Safety Features

- A) Loss of Ground connection terminates test cycle
- B) Front panel receptacle accepts 3-pronged power cord from DUT providing maximum safety and significantly reduces time required to perform the test
- C) Recessed START button
- D) Visual alarm at failure
- E) Audible alarm at failure
- F) Fast electronic shut down of voltage
- G) Hard RESET after failure required to perform next test
- H) Complete discharge of Device Under Test (DUT)

1-5. Supplied Equipment

- A) Ground Continuity Tester, Model M25, M30, M35, or M10
- B) Power Cord, three pronged, 6 ft
- C) High Current Ground Sense cable, 18 in
- D) HV Interface Cable (interfaces to Hipot)
- E) Operation/Service Manual
- F) Extra fuse set for the alternate AC supply voltage