

## Model 1000 Instructions

### INTRODUCTION

The Model 1000 Tracer is intended for use for the rapid diagnosis of the exact location of short circuits on any type of PCB. It can also be used for ordinary continuity testing and for finding faults in cable harnesses.

#### How it works

Short circuits are by their nature, very low resistance, so when they occur across two tracks on a PCB they cannot be found by using a DMM because the resistance of the tracks is much less than an ohm.

The Model 1000 has the ability to discriminate resistance as low as 1 milliohm (0.001 ohm). The two probes inject a controlled current into the track of the PCB. Sensitive circuitry amplifies the very small voltages generated. This amplified signal is then converted to an audible tone, enabling the user to concentrate on tracing the fault.

The audible tone REDUCES in pitch as the resistance is reduced i.e. as the probes get closer to the short circuit.

A headphone socket is provided for individual use or in a noisy environment.

### INSTRUCTIONS FOR USE

1. Remove rear panel and fit a 9-volt PP3 battery onto the clip located inside. Refit panel
2. Switch on by rotating the control knob clockwise. The "power" LED should start to flash. This indicates that the model 1000 is ready for use.
3. Keeping the control to the lowest sensitivity, i.e. fully counter clockwise, 0-250 milliohms, connect both probes together. This will result in a low tone indicating a dead short. *(Note the probes will need to be pushed hard together to ensure good connection.)*
4. On a sample PCB try connecting the probes onto a track. Moving the probes further apart along the track will result in a change in the tone as more resistance is introduced between the probes. For thick tracks increase the sensitivity to the 0-25 section, this is the most sensitive part of the range and will only be required for tracing faults on wide copper tracks.
5. After a short period of familiarisation with the model 1000 it will be possible to trace a short circuit. *(Note: The model 1000 is protected against voltages of up to 100V AC or DC, however, it is recommended that the PCB being tested should be disconnected from its' supply)*
6. Power consumption – The model 1000 uses minimum power when there is no tone output. However when the probes are engaged and a tone is heard, consumption increases up to 100 mA. This reduces the battery life to approx 2 hours.
7. Other uses for the Model 1000
  - a) Continuity tester  
The Model 1000 can also be used as a simple continuity tester. For resistances up to 20 ohms between the probes the Tracer will give a high tone. For higher resistances there will be no output.
  - b) Faultfinding in cables and looms  
When shorts occur along the length of a cable harness, it is very difficult to determine exactly where the fault is located. Connect the two probes across the two wires that are shorted. Adjust the Sensitivity control until a low tone is heard. Now, connect a length identical cable, between the two probes. Adjust the length until an identical tone is heard. This represents double the distance to the point at which the short in the cable harness.