

# CMI760 Series®

Highly flexible equipment for copper measurement

## The Oxford Instruments CMI760 was designed to meet the copper measurement and quality control needs of the printed circuit board industry

The **CMI760** measures various surface copper applications and comes with a SRP-4 user-replaceable tip. Optional accessories that measure plated through-hole copper can also be added. This highly expandable bench top system is capable of both micro resistance and Eddy Current testing, resulting in accurate and precise measurement of copper.

This bench top system is remarkably versatile and expandable. The **CMI760** accepts multiple probe types to meet application needs, including surface copper, through-hole, micro through-hole, and through-hole quality.

The **CMI760** product comes standard with an advanced statistical package for the interpretation of test data. We stand behind our equipment with a responsive customer service team and warranty policy. SRP-4 PROBE: The SRP Probe utilizes advanced micro resistance test method technology. This probe measures thickness as a function of resistance, therein obtaining exact, reliable readings regardless of laminate thickness and/or copper plating on the opposite side of the printed circuit board. The SRP-4 features user-replaceable probe tips (patent pending). A worn probe tip can be quickly and easily replaced on-site, minimizing downtime. Replacement probe tips are a far more economical alternative to replacing the entire probe. One replacement probe tip comes standard with the **CMI760**. Additional probe tips are available in boxes of three. Additionally, this tethered probe features a rugged cable and small footprint for ease of use.



### CMI760 product consists of (for surface copper applications):

- Gauge: **CMI760**
- SRP-4 Probe
- One SRP-4 Replacement Probe Tip
- Two NIST Traceable Calibration Standards

### Optional accessories (for plated through-hole applications):

- ETP Probe
- TRP Probe
- SRG Software



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## Accessory highlights

**ETP PROBE:** The ETP probe utilizes Eddy Current test method technology. The Eddy Current test method indicates whether copper coating thickness on the inside of the printed circuit board through-holes meets required specifications. The probe was designed to generate accurate readings regardless of the board's interim layers. It works equally well on double-sided and multi-layer boards, before and after etch, even with tin and tin/lead resist. In addition, the **CMI760** instrument with the ETP probe features temperature compensation

technology, enabling measurement of plated through-hole copper immediately after the board is lifted from the plating tank.

**TRP PROBE:** With the TRP Probe, the **CMI760** can be expanded to precisely measure copper plating thickness as well as through-hole quality. This patented 36-point measuring system delivers a value for Quality (Q) by detecting the presence of cracks, voids, and non-uniform plating, and is available only from Oxford Instruments. The pyramidal tips are precision machined to ensure accuracy and reproducibility for plated through-hole applications.

### GAUGE SPECIFICATIONS:

**Memory Capacity:** 8000 bytes, non-volatile

**Dimensions:** 11 1/2" (W) x 10 1/2" (D) x 5 1/2" (H) (29.21 x 26.67 x 13.97 cm)

**Weight:** 6 lbs. (2.79 kg)

**Units:** Automatic conversion between imperial and metric with a keystroke

**Unit Conversions:** Select from mils,  $\mu\text{m}$ ,  $\mu\text{in}$ , mm, in., or % as units for display

**Interface:** RS-232 serial port output with adjustable baud rate, for a printer or PC download

**Display:** Large LCD 480 (H) x 32 (V) pixels, backlit, wide-angle view

**Statistical Display:** Number of readings, standard deviation, mean, high, low  
Technology (ETP Option): Conforms to ASTM E376-96 Statistical Report (when interfaced with a serial printer or PC download):  
Memory location, number of readings, copper type, fine lines, date/time, mean, standard deviation, percent deviation, accuracy, high, low, range, cpk, individual readings, time-stamp, histogram

**Charts:** Histogram, trend, x-Bar, and r

### SRP-4 PROBE SPECIFICATIONS:

**Accuracy:**  $\pm 1\%$  ( $\pm 0.1 \mu\text{m}$ ) referred to reference standards

**Precision:** Electroless Copper: 0.2% standard deviation typical, Electrodeposited Copper: 0.3% standard deviation typical

**Resolution:** 0.01 mils > 1 mil, 0.001 mils < 1 mil,  $0.1 \mu\text{m}$  >  $10 \mu\text{m}$ ,  $0.01 \mu\text{m}$  <  $10 \mu\text{m}$ ,  $0.001 \mu\text{m}$  <  $1 \mu\text{m}$

**Thickness Range:** Copper:  $10 \mu\text{m}$  – 10 mil ( $0.25 \mu\text{m}$ –  $254 \mu\text{m}$ ), Fine Line Measure: trace width 8 mil – 3000 mil ( $203 \mu\text{m}$  –  $76.2 \text{mm}$ )

### ETP PROBE SPECIFICATIONS:

**Accuracy:**  $\pm 0.01$  mil ( $0.25 \mu\text{m}$ ) < 1 mil ( $25 \mu\text{m}$ )

**Precision:** 1.0% at 1.2 mil typical

**Resolution:** 0.01 mils ( $0.25 \mu\text{m}$ )

**Eddy Current:** Conforms to methods ASTM E37696

**Thickness Range:** 0.08– 4.0 mils ( $1$  –  $102 \mu\text{m}$ )

**Minimum Hole Size:** 35 mils ( $899 \mu\text{m}$ )

### TRP-M (MICRO-HEAD) SPECIFICATIONS:

**Hole Diameter Range:** 10 mils – 40 mils ( $254$  –  $1016 \mu\text{m}$ )

**Minimum board thickness:** 13 mils with 10 mil hole ( $330.2 \mu\text{m}$  with  $254 \mu\text{m}$  hole)

**Eddy Current:** Conforms to methods ASTM E37696

**Thickness Range:** 0.08– 4.0 mils ( $1$  –  $102 \mu\text{m}$ )

**Minimum Hole Size:** 35 mils ( $899 \mu\text{m}$ ) w

## Oxford Instruments Industrial Analysis

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