



STI Vibration Monitoring Inc.

Vibration Monitoring and Machine Protection Systems

1010 East Main Street, League City, TX 77573 Phone: 281.334.0766 Fax: 281.334.4255
www.stiweb.com / www.stiwebstore.com

Condition Monitoring Custom Products

CMCP610 Eddy Probe Calibrator Instructions

The CMCP610 Eddy Probe Calibrator provides a convenient and precise method of verifying the voltage output vs. physical gap of an Eddy Probe and Driver system.

Designed for use in the field or shop environment, the CMCP610 will work with any manufacturer's 5mm and 8mm probes and is supplied with probe holders to accommodate 1/4-28 and 3/8-24 thread sizes. Any probe case length will fit into the calibrator.

The Field Calibrator provides an adjustable static gap across which the probe observes a target of precisely the same material that the probe will observe when installed as part of the machine monitoring system. The target must be of similar material because differences in conductivity and permeability of different metals affect gap-to-voltage sensitivity. The CMCP610 is supplied with a industry standard 4140 steel spindle target and other target materials are available upon request.

The spindle micrometer on the CMCP610 is accurate to 0.001" increments to precisely document the physical gap between the Eddy Probe tip and the spindle target. With the length of the physical gap, and the output of the Eddy Probe, a calibration curve can be generated. The calibration potentiometer on the various models of the Eddy Probe Drivers is then adjusted to refine this curve.

Set-Up Procedure

1. Insert the 1/4" or 3/8" adapter, depending on the probe diameter, through the hole in the calibrator
2. Insert the probe into the adaptor. Be sure that the entire non-metallic portion of the probe tip extends beyond the end of the adapter
5. Connect the probe lead to the appropriate extension cable and probe driver
6. Apply -24 Vdc power to the Driver, and connect a voltmeter to the Driver output
7. Rotate the micrometer scale to read "40 mils" and move the probe to read -8 Vdc for a 200mV/mil system, or -4 Vdc for a 100mV/mil system, on the voltmeter without disturbing the spindle setting.
8. Proceed with calibration procedure



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Calibration Procedure

1. Slowly adjust the micrometer dial, first increasing and then decreasing from the 40 mil (1mm) starting gap, and record the new voltmeter readings for each 5 mil increment.

NOTE: Contact is not necessarily zero volts, since the gap is measured from the coil within the tip, and not from the surface of the tip itself. The distance from the coil to the tip surface varies ± 3 milli-inches. Ordinarily, the first 10 or 12 milli-inches of gap is not usable.

2. Plot a straight-line graph through the recorded points. A probe that is in calibration should have a graph with a 100 or 200 mV/mil slope.

3. If slight adjustment of the slope is necessary to calibrate to a particular shaft material, the calibration control on the Eddy Probe Driver unit usually provides a $\pm 10\%$ adjustment for sensitivity.

Eddy Probe Graph

