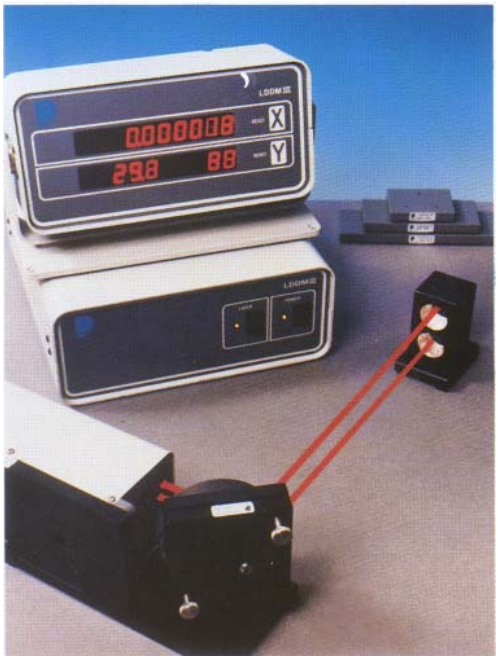
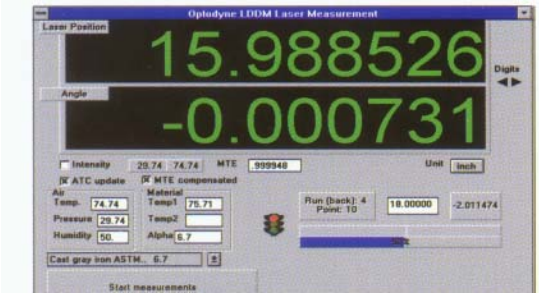
Laser Doppler Displacement Meter

MCV-2002





Linear, Angular and Flatness Calibration

OPTODYNE'S MCV-2002 Linear and Angular Machine Calibration Instrument calibrates CNC machine tools, CMM's (Coordinate Measuring Machines), and other precision measurement machines and stages. Angular, straightness and flatness measurements can be made "onthe-fly". The unique dual beam design provides a rapid means to measure the surface flatness of surface plates, optical tables, machine tools, and bearing guides.

OPTODYNE'S machine calibration instruments are based on our proprietary and patented **Laser Doppler Displacement Meter (LDDMTM)** technology. The total system is compact providing easy, convenient storage and transporting. Easy set-up procedures reduce overall machine calibration time, especially where multiple axes are involved. This, coupled with a modest initial investment, provides continual savings.

The **MCV-2002** dual beam system design provides the user a simple, easy-to-operate angular and linear capability in a single instrument. It is like "having two interferometers in one". One beam collects the angular data while the other beam monitors the linear position. The user friendly software, running on a laptop or notebook computer, collects and analyzes this data. The data can then be displayed on screen or printed in tabular or graphic form.

MAJOR FEATURES AND BENEFITS

- Simultaneous linear and angular data collection
- Compact and light-weight
- Easy to align and set-up
- Automatic data collection
- NIST traceable laser accuracy
- Long range and high speed
- No tripod and no interferometer
- On-the-fly measurement capability (Via Displacement)
- Windows or DOS software
- Automatic compensation for environmental factors
- NMTBA, VDI, ISO and BS standards

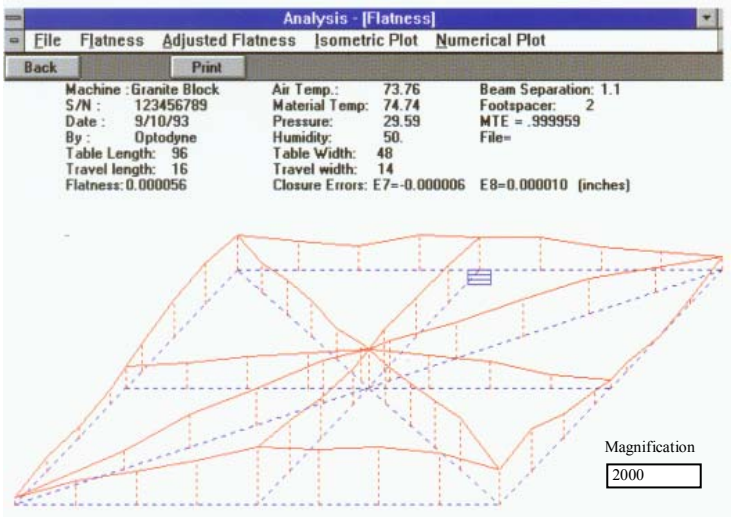
MAJOR APPLICATIONS

- Calibration of surface plates
- Calibration of CNC machine tools
- Calibration of CMM's
- Check pitch and yaw angles of linear machines and XY-tables
- Measuring straightness of machine motion

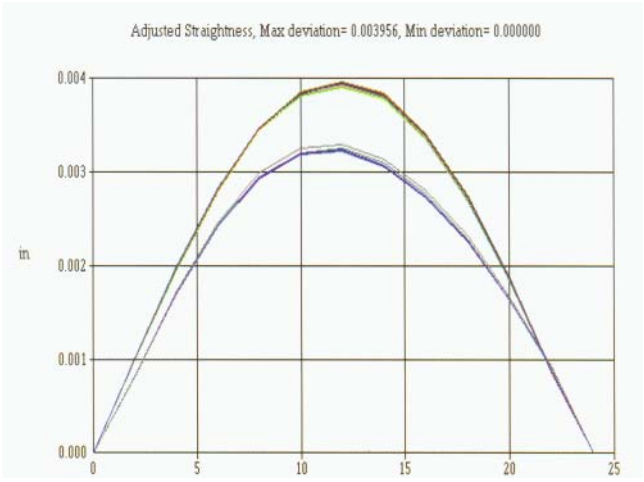
Specifications

The MCV-2002 Machine Calibration System features an environmental compensation sensor, which automatically adjusts the collected data for atmospheric temperature, barometric pressure and thermal expansion of the material of the axis being calibrated.

The Windows or DOS software package included in the MCV-2002 enables the user to collect and store measurements. Using the Moody method, flatness data can be converted into a surface height map.
Straightness plots can also be calculated from angular data. These plots can be printed as shown below:



Isometric surface plate plots from Optodyne's surface flatness measurements



Vertical straightness of a machine axis

MCV-2002

Configuration:

Dual beam laser head	L-104
Processor module with RS-232 Interface	P-210
Dual retroreflector	R-103
Alignment kit (flatness and angle)	LD-32
Adapter platform for DB	LD-14DB
Surface flatness kit	LD-24
12 ft. cable set	LD-21L
Linear calibration program	W-102
Angular measurement program	W-103
Surface flatness measurement program	W-104
Automatic Temperature Compensation	IATC
90˚beam bender & adaptor	LD-15A
Magnetic base	LD-03

Options:

Carrying case	LD-20C
Surface plate straight edge	LD-43
Notebook Computer	LTC
10 Digit LED Display	D-101

Capability:

Laser Stability	0.1 ppm
Linear Accuracy	1 ppm (typical)
Angular Accuracy	± 2%
Angular Resolution	1 microradian /0.2 arcsec
Flatness Resolution	1 microinch
Max Angular Sweep	± 10 degrees
Max Distance	33 feet linear, 16 feet angular option: 66 feet/33 feet
Slew Rate	72 ips

Power:

90 to 230 VAC, 50 to 60 Hz