

# Microsense II

## Model 5300 Capacitance Gauging System

### Description

Conveniently packaged in a 19" rack mount console, the Microsense II is designed for high precision, non-contact displacement measurement of high speed, moving, rotating, or vibrating devices utilizing Microsense's latest sub-nanometer resolution capacitance technology.

The advanced Microsense II is designed to meet the most demanding measurement needs including fast tool servo, ultra-high speed spindle analysis and hard disk drive AEM (NRRO) analysis.

The Microsense II can be configured with up to 16 simultaneous channels. A single channel allows for simple displacement and run-out gauging. A second channel can be added for simultaneous measurement applications. Two additional channels can be plugged-in for complete versatility in testing.

Differential analog outputs are available via a DB25 connector on the rear panel or via SMB connectors on the front of each channel for easy connection to oscilloscopes, spectrum analyzers, computer based A/D boards, or Microsense's SpinCheck Spindle Metrology System.

The Microsense II comes standard with an easy-to-read analog display module to assist in setting up the probes. For high-speed digital data-acquisition, the unit can be connected to an off-the-shelf data acquisition card.

High bandwidth and sub-nanometer resolution are combined in the Microsense II to make this advanced instrument the ideal choice for precision measurements of spindles, shafts, bearings, pumps, and other moving or vibrating targets.

### Disk Drive Motor Testing

The Microsense II has been designed for high resolution measurement of HDD motors constructed with ceramic, ball, or hydrodynamic bearings. The Microsense II, when combined with Microsense's SpinCheck HDD motor metrology system, is the instrument of choice for measuring the motors of today and tomorrow. With sub-nanometer resolution at high bandwidths, the Microsense II is ready to measure your next generation of HDD motor technology now.



Model 5800 OEM Gauging Module

### Applications

- ▲ Inspection / evaluation of high-speed ball, hydrodynamic or air bearings
- ▲ Machine tool spindle performance evaluation / monitoring
- ▲ High-speed PCB drilling spindle evaluation / monitoring
- ▲ Precision optics processing equipment evaluation / monitoring
- ▲ Run-out / NRRO motor or disk analysis
- ▲ Vibration analysis
- ▲ Velocity, acceleration, flutter and warp analysis
- ▲ Non-contact, non-destructive measurement applications
- ▲ Computer disk edge run-out applications

### A Range of Standard and Custom Probes

Microsense LLC has developed a family of ultra-low noise capacitance sensors for the Microsense II system. Contact your Microsense LLC sales representative for details of Series 5000 probes.



## Performance

Ranges:	+/- 25 microns to +/- 500 microns full scale, depending on probe selection.
Frequency Response:	Jumper selectable filtering: 1 kHz, 5 kHz, 20 kHz, 100 kHz
Linearity:	Typically 0.1% of full-scale (see note 1)
Resolution:	1 nanometer rms @ 100 kHz bandwidth (see note 1)

## Functions (Standard Unit)

**Meter:** Zero meter reading indicates probe is at nominal standoff from measured target.

## Option for differential measurements

**A+B:** Sum of the A probe and the B probe displacement signals

**A-B:** Difference of the A probe and the B probe displacement signals

## EMC Certification

The Microsense II Capacitance Gage has been tested and is in compliance with the requirements set forth in EMC Directives EN 55022, EN 50082-1, 89/336/EC, IEC 801-2, IEC 801-3, and IEC 801-4. Test Report Number: CE101195

## Notes

1. Parameters listed are typical when using a 2mm active sensor area and a range of +/- 50 microns. Specifications will vary depending upon range, standoff distance, and probe active sensor area. Resolution improves with larger sensor areas, reduced bandwidth and smaller ranges. Ideal Operating Temperature is 60-90° F (16-35° C). For specific resolution for your application, talk to your Microsense LLC sales representative.

Manufactured under one or more of the following U.S. Patents:  
3,706,919 3,775,678 3,805,150 3,990,005 4,918,376 5,557,267  
Other Patents applied for. Foreign Patents may also apply.



Microsense LLC

Microsense LLC  
70 Industrial Ave E.  
Lowell, MA. 01852  
Main Tel (978)843-7670  
Fax (978)856-3375  
WebSite [www.microsense.net](http://www.microsense.net)

## Velocity / Acceleration Option

A plug-in VA option is available for the Microsense II system. When configured with this VA option, Velocity and Acceleration measurements are derived for the probe selected on the channel switch. Filtering is provided by three-pole Bessel or Butterworth low-pass plug-in filters. The user selects the upper roll-off frequency (as defined by ANSI standards) over a range from 1-20 kHz.

## Mechanical Parameters

**Dimensions:** Width: 16.5 inches (42.31 cm)  
Height: 5.75 inches (14.74 cm)  
Depth: 13.0 inches (33.33 cm)

**Shipping Weight:** 23 pounds (10.35 kg)

## Power Requirements

The Microsense II System utilizes a power supply that will accept virtually any standard input voltage in the world. Please specify the proper IEC320 power cord for your region.

**Input Voltages:** 100-240 V AC, externally switched

**Input Frequency:** 50-60 Hz