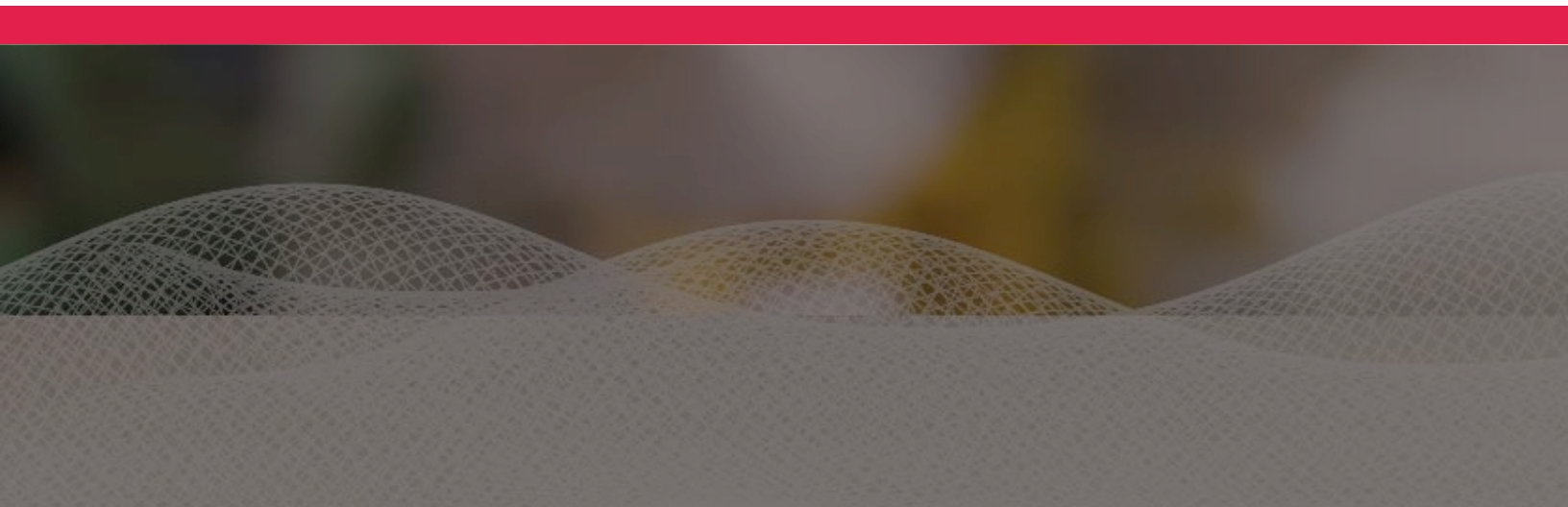


# Accumeasure™ Series

Highly accurate capacitive displacement systems  
used to measure small distances with  
outstanding resolution



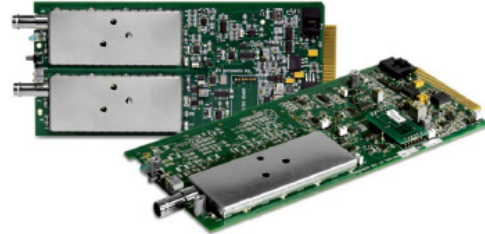
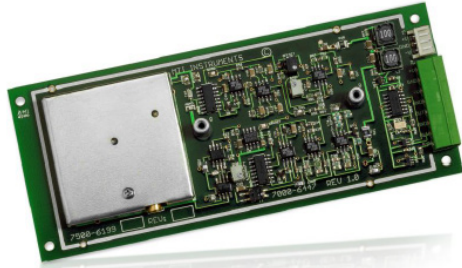
## **The Accumeasure product line offers affordable, precise measurement solutions for a wide range of environmental conditions and configurations.**

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Capacitive sensor products are ideal for high resolution gap and displacement measurements that require a high level of accuracy that is both stable and repeatable. A capacitive sensing system consists of a probe and amplifier. Capacitive measurements can be performed in a multitude of environments using non-contact passive capacitance probes that are not affected by magnet fields, temperature, humidity, nuclear radiation, and pressure. This is largely due to the nature of the rugged and passive capacitance probes.

Extremely high-precision and high linearity amplifiers make these systems ideal for critical measurements in X-Y stages, rotating spindles, shaft position, armature gap, disk position, and piezo electric positioning applications. MTI engineering guarantees a highly stable, accurate and low noise amplifier design with an attention to fast response time.

Thousands of MTI's products are used globally in the semiconductor, automotive, aviation, electronics, and medical industries. As the leader in capacitance technology with decades of experience, MTI stands behind the quality and performance of the most demanding use cases.



# In Process or Desktop Solutions

A system consists of a capacitance amplifier packaged in an enclosure ideal for lab or in-process systems and a capacitance probe or probes as several of MTI's solutions incorporate multiple channels.



## Accumeasure D

Sub-micron resolution with up to 12 mm range. Accuracy to 0.01 % of the full-scale range. It has built in digitally controlled low pass cutoff filters, adjustable sample rate and data logging features. Display data right on your PC or HMI. USB and Ethernet ports provide digital connectivity at 100 megabit speeds. Analog outputs are also available. 1-4 channels in a small compact enclosure. Only 24 VDC industrial power is needed.



## Accumeasure HD

Picometer resolution with up to 2 mm range. Accuracy to 0.01 % of full scale range. It has built in digitally controlled low pass cutoff filters, adjustable sample rate and data logging features. Display your data right on your PC or HMI. USB and Ethernet ports provide digital connectivity at 100 megabit speeds. The amplifier has Digital output only as analog output would only corrupt the high resolution data. 1-2 channels in a small compact enclosure. Only 24 VDC industrial power is needed.

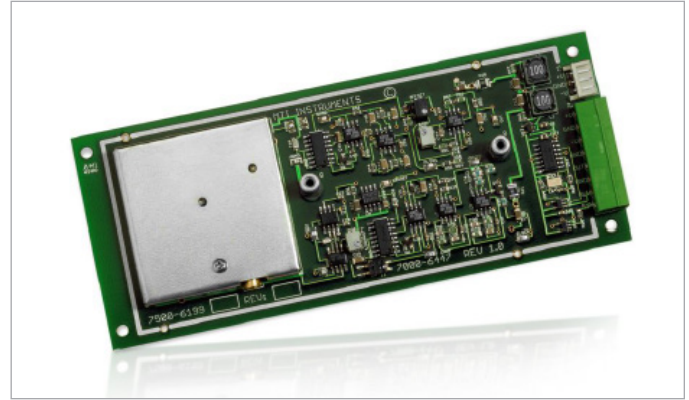


## Accumeasure 9000 & Accumeasure 500

AS-9000 is an analog output, high-res, capacitance-based instrument providing the perfect solution to many previously unattainable measurement applications. The AS-500 is a multi channel analog output rack system that accepts up to 6 capacitance amplifiers (AS-562-PA or AS-563-PA). Both deliver nanometer level resolution for ultra-high precision measurements. Probes need to have BNC connectors or SMA to BNC adapters. They have built in power supplies and an oscillator to drive the amplifier.

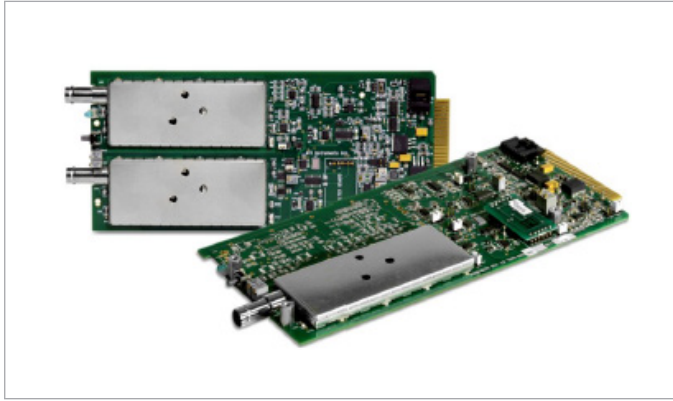
# PCB OEM Boards for Embedded Applications

A system consists of a printed circuit board (PCB) capacitance amplifier, probe and coax cable. The customer provides the enclosure and power supply. MTI provides the connector interface. Probes require a MCX connector or BNC depending on the amplifier chosen.



## **Accumeasure MicroCap**

Our smallest OEM PCB footprint. Sub micron resolution, with up to 25 mm range. 0 to + 10 volt analog output. Requires +/- 15 VDC analog power supply. Linearity accuracy to 0.1 % of full scale range up to 5kHz bandwidth. Frequency response must be specified at time of order.

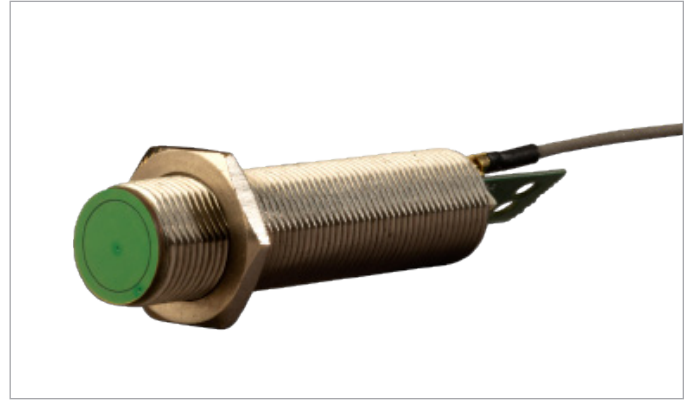


## **Accumeasure AS-56X**

Sub micron resolution , with up to 25 mm range . 0 to + 10 volt analog output. Requires +/- 15 VDC analog power supply. Linearity accuracy to 0.05% of full scale range, up to 5,000 Hz bandwidth. Frequency response must be specified at time of order. Frequency response is set by plug in low pass filter. Offset and gain pots for user adjustments. The Accumeasure AS-562 can also operate with ungrounded targets typically for semiconductor wafer applications.

# Probes and Probe Systems

Probes need to be mated with a capacitance amplifier. Some probes have integral leads, others require selecting a coaxial cable assembly. MTI works with OEM clients to make custom probes meeting specific application needs.



## **Accumeasure Wireless**

A low bandwidth solution for applications where wires are impossible. The probe requires 3V DC power which can be supplied by a battery. Blue tooth connectivity with a remote receiver board for interface to a PLC via RS-485 serial interface. Sensor range up to 2 mm and resolution of 5 $\mu$ m. A remote receiver is included in the system.





## Accumeasure Probes

MTI provides a wide range of various probe types for all the above amplifiers. They include robust stainless-steel probes with integral leads or quick disconnect coaxial connectors. We also have ultra-thin polyimide probes , PCB probes and push pull probes for ungrounded targets. MTI designs and manufactures probes for OEM or single sensor sales. If you don't see what you need, contact us for a quote on a custom probe.

# Product Comparison

	Accumeasure HD	Accumeasure D	Accumeasure MicroCap	Accumeasure AS-56X	Accumeasure Wireless
<b>Resolution</b>	µm	nm	nm	µm/nm	µm
<b>Linearity (% FSR)</b>	±0.01	±0.01	±0.02	±0.02	±0.3
<b>Output</b>	Digital	Digital/Analog	Analog	Analog	Digital
<b>Bandwidth (Hz)</b>	5,000 Hz	5,000 Hz	5,000 Hz	5,000 Hz	1.5 Hz

## Thickness Measurements

### CHARACTERISTICS

- Ungrounded targets require push pull probes (AS-562-PA or Accumeasure D)
- Non-conductive targets require dielectric probes
- The Accumeasure D Measurements program has built in thickness measurement capability
- Accumeasure 9000 has a summing amplifier built in for thickness

### APPLICATIONS

- Semiconductor wafer thickness (Including Silicon Carbide wafers)
- Non-conductive material thickness (EV solid electrolyte separator)
- EV battery, Anode and Cathode plate (Conductive) thickness
- Sheet metal

## Pico/Piezo-Positioning

### CHARACTERISTICS

- Non-contact with target
- Embed probe in stage
- Measure mounted target motion
- Pico meter to mm ranges

### APPLICATIONS

- Motion stages (Piezo flexure stages)
- Auto Focus Stages
- Micro robotic motion
- Electronics assembly

## Rotor Gap Measurement

### CHARACTERISTICS

- High magnetic field immunity
- Narrow gap clearance
- non- conductive flat probe
- Relatively high temperature

### APPLICATIONS

- Wind turbines
- Armature gap measurement
- Electric power generation

# HOW DO I GET STARTED?

Which product is  
right for you?

Contact us today.



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7001-0186REV1.0