VITREK

mtiinstruments

Accumeasure™ Series

Highly accurate non-contact capacitive displacement systems measure small distances with outstanding resolution

Accumeasure™ Series

Affordable, precise measurement solutions for a wide range of environmental conditions and configurations.

Ideal for high-resolution gap and displacement measurements that require a high level of accuracy that is both stable and repeatable, capacitive sensing system consists of a probe and an amplifier. Measurements can be performed in a multitude of environments using rugged, non-contact passive capacitance probes that are not affected by magnet fields, temperature, humidity, nuclear radiation, and pressure.

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.

Desktop & Din Rail Solutions

Capacitive amplifier systems packaged in an enclosure for lab or in-process use. Usable with a variety of our capacitance probes.

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 500 & Accumeasure 9000

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).

AS-9000 is an analog output, high-res, capacitance-based instrument providing the perfect solution to many previously unattainable measurement applications.

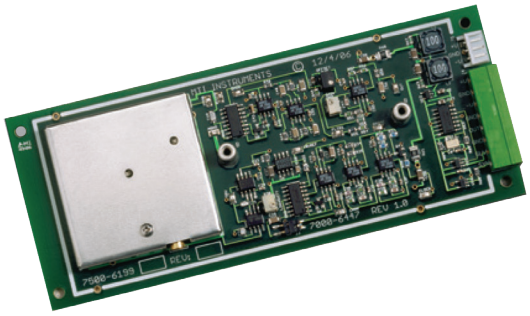
Both deliver nanometer level resolution. Probes need to have BNC connectors or SMA to BNC adapters. They have built-in power supplies and an oscillator to drive the amplifier.

Amplifier PCBs for Embedded OEM 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.

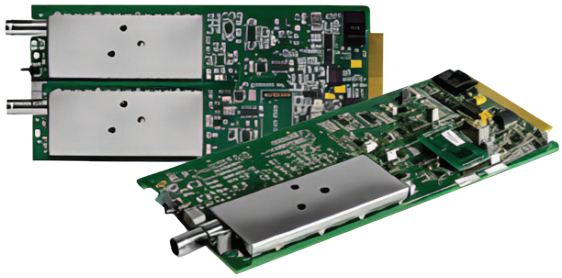
Common Amplifier Board Features

All offer sub micron resolution with up to 25 mm range. 0 to +10 volt analogue output and require a +/-15 VDC analog power supply.



Accumeasure MicroCap

Features our smallest PCB footprint and 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

Features 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 available for user adjustments. The Accumeasure AS-562 can also operate with ungrounded targets typically for semiconductor wafer applications.

Probes and Probe Systems for Amplifiers

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.

Stainless Steel Probes

These robust probes are available in a variety of standard configurations with integral leads or coaxial connectors. Custom versions are available in straight and R/A versions. Probes with temperatures profiles including cryogenic and high temperature chambers and also available.

Low Profile Probes

Vitrek provides a wide range of various probe types for all our amplifiers. We offer ultra-thin polyimide probes, PCB probes and push pull probes for ungrounded targets. Vitrek 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

	RESOLUTION	LINEARITY (% FSR)	OUTPUT	BANDWIDTH (Hz)
Accumeasure HD	pm	±0.01	Digital	5,000 Hz
Accumeasure D	nm	±0.01	Digital/Analog	5,000 Hz
Accumeasure MicroCap	nm	±0.02	Analog	5,000 Hz
Accumeasure AS-56X	µm/nm	±0.02	Analog	pm 5,000 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

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

Which product is right for you?
Contact us today.

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