



# Workshop

## Strain gauge installation techniques



### Program

In this comprehensive, hands-on workshop, participants make several complete strain gauge installations, including electrical connections, check-out, and environmental protection; and use appropriate readout instrumentation to verify results of their own installations.

During this training the participants will learn how to bring a strain gauge installation to a good end with the confidence that what has been installed will produce quality data.

Focus is on mastering the right techniques, starting from a blank material, participants learn to select the right surface preparation, strain gauge, adhesives, soldering, cables and coatings.

In between the hands-on training, all topics that are crucial for understanding strain measurements will be reached out to the participants in depth. Going from temperature compensation over strain gauges circuitry to bridge excitation optimization and installation calibration.

The techniques, products and instruments used during our workshop are these employed and manufactured by VPG - Micro-Measurements.

Full training program topics on the back side.

# Program Topics

## Strain Gage Characteristics

- Temperature Compensation
- Sensing Alloys
- Transverse Sensitivity
- Strain Limits
- Fatigue Endurance

## Installation Techniques

- Surface Preparation
- Adhesive Selection
- Gage Installation Procedures and Check-Out
- Leadwire Attachment
- Protective Coatings
- Installation verification and quality control



## Gage Installations With Different Adhesives

- Room-Temperature Installation
- Handling Heat-Curing Adhesives
- Clamping Techniques
- Soldering techniques
- Protective Coatings
- Measuring Strain Level

## Special Gage Installation Techniques for Measurement Over Wide Temperature Ranges

- Gage Selection
- Gage Performance Characteristics
- Temperature Effects
- Leadwire Selection and Attachment
- Protective Coating Systems

## Strain Gauge Circuitry

- Quarter, Half and Full Bridges
- Leadwire Compensation

## Bridge Excitation

- Power Levels
- Self-Heating

## Calibration Techniques

## Discussion of Specific Problems as Requested by Participants – Case studies

