



DIRECT MEASUREMENTS, INC.

SR2

Strain Measurement System

Strain Measurement/Structural Anomaly Detection



SR2 Features

- Measures residual strain
- Accurate, compact, easy to use
- No wiring, soldering, or separate data acquisition equipment required
- Logs readings in CSV/Excel text files
- Utilizes DMI polymer strain gages
- Each gage is unique and self-identifying with built-in UID technology
- Includes rugged DMI handheld reader (requires one USB 2.0 port)
- Compatible with Windows XP and Windows 7 operating systems*

SR2 Applications

Civil Infrastructure



Aerospace & Defense



Energy



Laboratory & Testing



* Windows is a registered trademark of Microsoft Corporation in the United States and other countries.



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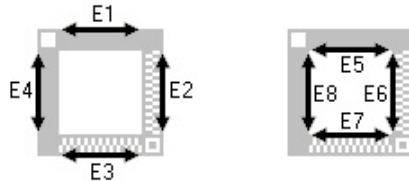
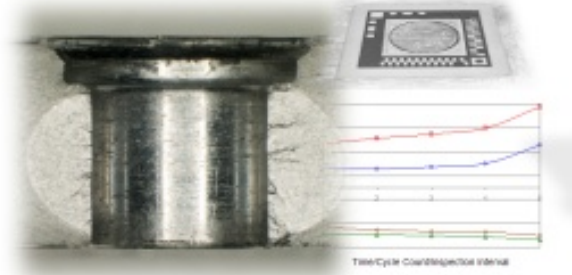
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DMI SR2

DMI SR2 is a general purpose software package for residual strain measurement and structural anomaly detection. Features include rosette and principal strain calculations, multiple data view options, data logging, and more. SR2 utilizes square DMI polymer strain gages that are bonded in desired measurement locations using conventional strain-gage application methods and materials. DMI polymer strain gages are unique and self-identifying via built-in UID technology, and they work on most materials, including metals, plastics, and composites.



DMI SR2 makes multiple, independent strain differential measurements within the gage area. These readings can be used to characterize the average strain field in the gage region as well as structural anomalies associated with fatigue damage, crack initiation, and crack growth.

SR2 Post Processor (SR2 PROC)

SR2 PROC is a post-processing graphical interface for analysis and display of historical SR2 data files. It works with any previously-downloaded data files and includes multiple data views and charting options. SR2 PROC software utilizes National Instrument's powerful LabVIEW tools and does not require LabVIEW software.

The screenshot shows the SR2 PROC interface. At the top right, there are four numerical readouts: 309, 62, 296, and 758. Below these are radio buttons for 'View' options: 'Normal & Shear', 'Principal Strains', and 'Elem. Avg.' (which is selected). The main window displays a table of 'Logged Data' with columns for Index Number, Date, and Time. Below the table is a multi-line graph showing 'Micro Strain' vs 'Time' for four different elements (Top Avg., Right Avg., Bottom Avg., Left Avg.). A zoomed-in view of the graph shows a single data series with a peak of approximately 750 micro-strain.

Index Number	Date	Time
109	Friday, July 08, 2011	1:15:00 PM
110	Friday, July 08, 2011	1:15:04 PM

The SR2 PROC interface provides data display with an intuitive graphical interface to view Normal, Shear, Principal, and perimeter strains at any point over previously downloaded data log file.



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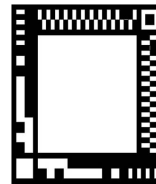
SR2 Operation



Bond a DMI polymer strain gage at the measurement location



Take an *Baseline* gage reading using the DMI handheld reader



Allow the strain event to occur (strain may be intentional or unintentional).



Measure strain by taking a *Current* reading using the DMI handheld reader.

DPS Technical Specifications

DMI Handheld Reader

Material: ABS Plastic
Handheld Reader: 5.2H x 2.7D in (132H x 69D mm)
Connection: USB 2.0, 3.3 ft (1m) cable
Accuracy: <10 microstrain*1

SR2 Polymer Gage*2

Material: Polyester
Dimensions: 0.39 in (10 mm) square*3
Operating Temperature: -200 to 200 F (-129 to 93 C)

*1 DMI results under controlled conditions, actual results may vary
*2 Bonding methods and material same as conventional electrical-resistance strain gage application
*3 Contact DMI for gage size customization
*4 Windows is a registered trademark of Microsoft Corporation in the United States and other countries

SR2 Computer Requirements

Operating System: Windows XP Professional*4 or Windows 7 Professional*4
Processor: 1.6 GHz or greater
Connectivity: USB 2.0

Panasonic Toughbook U1 (Optional)

SR2
SR2 Proc

Panasonic Toughbook U1 (Optional)

Panasonic Toughbook U1, DMI software pre-installed

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DMI

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US & Int'l Patent/Patent Pending

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