INFIELD

*Field Performance and Analysis Software*

Version 2.0

Key Features

- Ease of Use
- Streamlined for Use with SoMat Hardware
- Ensures Good Field Data Prior to Leaving the Test Site
- Extensive Plotting and Graphing
- Powerful Analysis
- Expansion Modules
- Advanced Channel Sorting
- Multiple File Format Support

SOMAT®

Rugged, Mobile Data Acquisition

SoMat InField 2.0

InField is a versatile field analysis software program optimized for use with SoMat hardware.
It is designed to enhance the field test collection and data visualization process by making sure you never leave the field without the numbers you need.
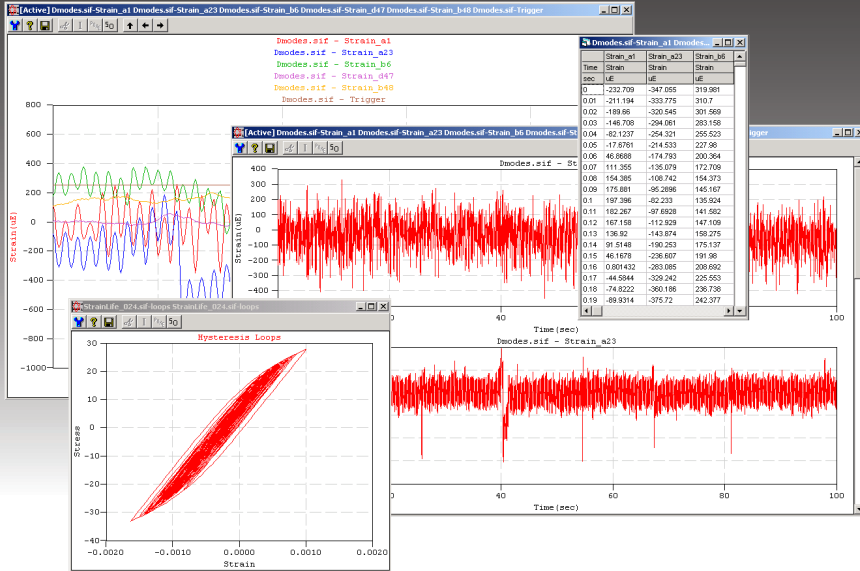
The InField Advantage:

- **Ease of Use**
- **Fast Data Visualization**
- **Powerful Analysis**
- **Extensive Plotting and Graphing Displays**
- **Easy Report Generation**

Easily copy and paste your report graphs into Microsoft® Word, Excel or PowerPoint via the Clipboard.

InField was designed with test and design engineers in mind.

We have compiled a suite of tools ranging from easy-to-use plotting capabilities to powerful engineering tools needed to make tough design decisions.
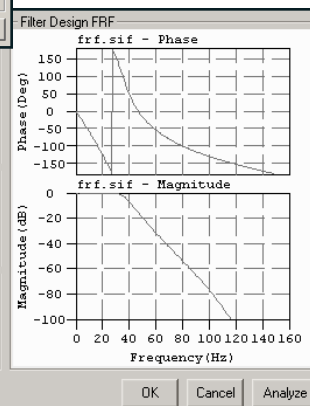
Calculator
Perform a wide range of mathematical functions on your data.
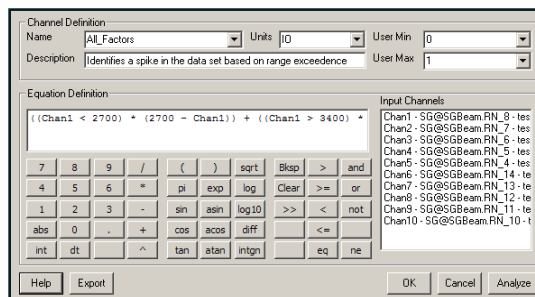
Frequency Analysis
InField offers a useful Auto Power Spectrum to help determine frequencies and associated energy levels.

DataModes
DataModes allow you to reformat time history data into various other formats such as; Time at Level Histograms, Peak Valley Histograms, Burst Histories, Rainflow or just convert to another time history with different triggering or gating options.

Statistics
Identify statistics such as Max and Min, Standard Deviation, RMS, Mean and more.
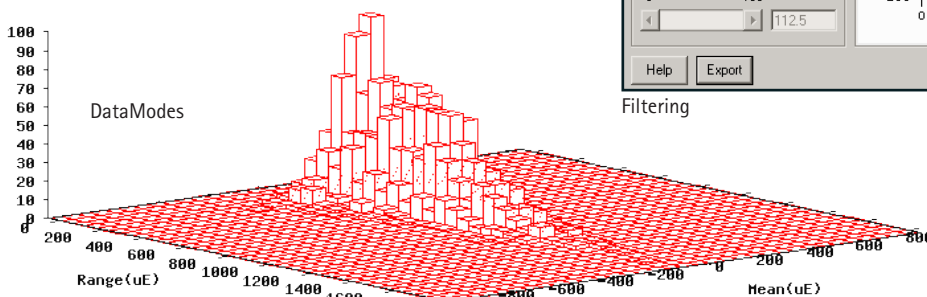
Filtering
Design your own digital filter to apply to your data. You can select Butterworth or a FIR filter and design a low pass, high pass, band stop or band pass filter.

Calculator

Filtering

DataModes

# Extend the Power of InField with Expansion Modules
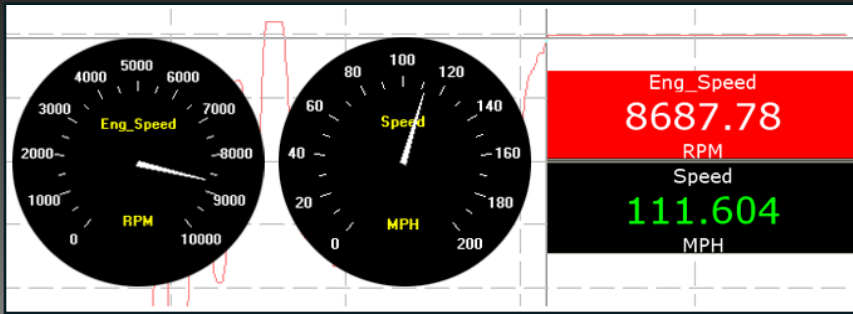
Test Control

Test Control Module
InField Test Control for SoMat Systems Allows Better Insight into Your Data
- Integrated Data, Visualization and Analysis
- Advanced Real Time Displays
  - Overlay, XY Plot, Angular Gage and More
  - Including Over-Range Alarms
- Automated Post-Run Tasks and Analysis

Relative Damage Comparator
This analysis module compares selected channels with regard to their potential for causing fatigue damage. The first channel selected will be a reference to which other selected channels are compared. Channels are compared in three different fatigue life regimes: fatigue crack propagation, long life and low cycle fatigue.
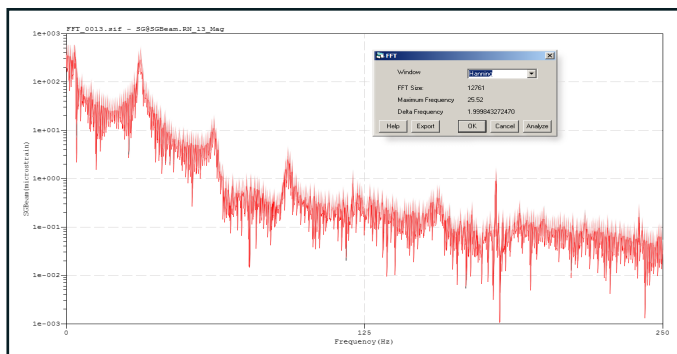
Rosette Analysis
Rosette Analysis converts the three strains from a rosette strain gage (rectangular or delta) into orthogonal axial strains and/or stresses. Optionally, these can be further resolved into principle strains, principle stresses, tensile or shear strains at arbitrary angles, Von Mises stress, etc. Rosette strain gages eliminate the problem of perfectly orienting single strain gages; strain at any angle can be later computed with Rosette Analysis.

Frequency

Advanced Frequency Module
This module allows a user to perform FFT, Inverse FFT, and FRF analysis on time domain data. This module also provides a frequency-based resampling tool. The desired sample rate does not need to be an integer multiple. For example, you can resample 204.8Hz to 200Hz.

Fatigue

Fatigue Module
InField 2.0 calculates fatigue life employing a wide range of fatigue models using time series, rainflow cycles, sequential peak valley or user-defined amplitude loads. You can quickly calculate the time from crack initiation to final fracture for a wide range of structures, materials and loading situations. InField 2.0 features a wide range of fatigue analysis calculations and modules including:

Stress Life (S/N): Used to perform fatigue analysis when empirical data is available for surface finish notch factors with easily obtained material properties from tensile tests.

Strain Life (ε – N): Used for variable amplitude loading of components with stress concentrations because it allows for a more accurate accounting of cumulative damage and load sequence effects.
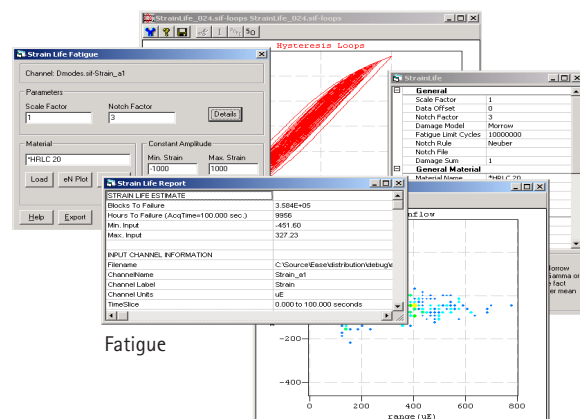
Welded Detail Analysis (BS 5400): With the theoretical background in fracture mechanics, this module uses S/N curves for various welded joint details as the material data.

Load Life (P/N): Used to perform fatigue analysis independent of material properties.

Crack Growth Analyzer: Deals with growing fatigue cracks to assess the remaining life of a structure.

SoMat InField
Field Performance and Analysis Software

InField Base
(Product Number: INFIELD)

Plotting

- *Histogram*
- *XY Plots*
- *Over Plot*
- *Multi Plot*
- *Tabular*

Analysis DataModes

- Time History
- Burst History
- Time at Level
- Peak Valley
- Peak Valley Matrix
- Rainflow

Statistics

Signal Calculator

Frequency Analysis

- **Auto Power**
    Spectrum Analysis

Digital Filter Design

Integer Based Upsampling

Meta Data Editor

Script Player

- Analysis Scripts
- Plot Scripts
- Workspace Scripts
- eDAQ Channel Report
- Burst Splitter
- Run Splitter

File Formats (Reading)

SoMat	*(.SIF and .SIE)*
SoMat 2100	*(.DAT)*
nCode	(.DAC)
MTS® RPC III	(.RSP)
JD MDAS	(.TH, .PV, .MD, .1D, .2D)
ASCII	*(.ASC and .TXT)*

File Format Translators (Writing)

SoMat	*(.SIF and .SIE)*
nCode	**(.DAC)**
MTS® RPC III	**(.RSP)**
NI®	*(.TDM and .TDMS)*
ASCII	*(.ASC and .TXT)*
Verbose ASCII	*(.TXT)*
Verbose ASCII with Time	*(.TXT)*

InField Viewer—Comprised of Italicized Items within InField Base
(Product Number: INFIELD-VIEWER)

Expansion Modules

Test Control Module
(Product Number: INFIELD-TCN)

- Advanced Real Time Displays
- Automate Data Uploads and Analysis

Advanced Frequency Module
(Product Number: INFIELD-FREQ)

- FFT
- Inverse FFT
- Frequency Response Function
- Frequency Based Re-sampling

Rosette Analysis Module
(Product Number: INFIELD-ROSETTE)

Relative Damage Comparator Module
(Product Number: INFIELD-RDC)

Fatigue Module
(Product Number: INFIELD-FATIGUE)

- Strain Life
- Stress Life
- Load Life
- Weld
- Crack Growth

MATLAB® Translator
(Product Number: INFIELD-MATLAB)
MATLAB File Format Version 5.0 Read and Write (.MAT)

DADiSP® Translator
(Product Number: INFIELD-DADISP)
DADiSP File Format – Write (.DSP)

Requirements: Microsoft Windows® 98 Second Edition, Windows® NT 4.0 with Service Pack 6a, Windows® 2000 or Windows® XP • Pentium class PC (300 MHz or higher recommended) • 32 MB RAM (64 recommended) • 50 MB free disk space • 16 bit (or higher) color display

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Data Acquisition Solutions

SoMat provides a complete family of data acquisition systems for jobs large or small:

eDAQ
The foremost leader in Rugged Mobile Data Acquisition; collect data virtually anywhere, with any transducer, in the most extreme environments. The eDAQ is a sealed stand-alone system designed to be mobile with 10-60 VDC input power and a 20G rated enclosure. Hundreds of synchronous channels are possible in a single system with superior signal conditioning for Analog, Digital I/O's, Vehicle Bus, GPS and more. Infinite channel counts are available when networking this Ethernet-based system.

eDAQ-lite
Built on proven eDAQ technology, the eDAQ-lite is a more compact version of the popular eDAQ. This extremely modular system is designed with a small foot print for true unnoticed, unattended testing; but don't let size fool you. The eDAQ-lite is a powerful Rugged, Mobile, Data Acquisition system with many of the same attributes as the eDAQ.

SoMat Sensors
A family of sensors optimized for use with SoMat hardware systems. From pressure transducers to GPS; these rugged, reliable sensors are built for the harshest environments. Specifically designed for our systems, these sensors provide an integrated solution which includes the transducer, cabling, set-up and calibration instructions.
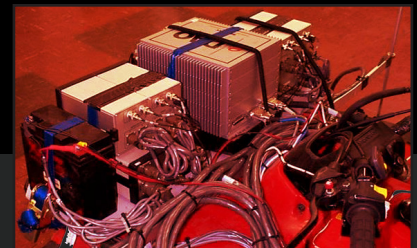
30-Day Free Trial
Try InField and you will never go back to your old data analysis software!

To receive a free 30-day trial of InField, contact a sales representative at info@usa.hbm.com or call (800) 578-4260.