Sciemetric Studio

Manufacturing Analytics and Real-Time Issue Detection

sciemetric

Smart Manufacturing Starts with Data

Sciemetric Studio is a suite of next generation analytics software designed for manufacturing. Process data is accessed from a Sciemetric QualityWorX Enterprise or Local project, including scalar data points, digital process signatures and machine vision data and images. By applying our industry-leading analysis capabilities for digital process signatures, Sciemetric Studio allows you to quickly spot anomalies caused by problematic parts. Statistical Process Control (SPC) based on Nelson rules also reveals processes that aren't performing to specification, in real-time and historically.

Data-Driven Intelligence for Manufacturing

- **Visualize all types of data from the production line**
- **Overlay thousands of waveforms for analysis**
- **Identify trends and pinpoint anomalies**
- **Drill down to an individual part's history across multiple stations**
- **Re-process and analyze historical data to optimize testing**
- **Evaluate the effectiveness of a test**
- **Establish rules and receive alerts for out-of-control processes**
- **Compare and trend information across stations to determine variations**

Sciemetric Studio provides a quick path from **analysis to answer**

Scalable data analytics software solutions to suit your needs

Sciemetric Studio is available in two different tiers, dependent on the scale and scope of your requirements. If you have only a small number of stations and basic analytical needs, Sciemetric Studio LT will let you get started without needing a database or any special infrastructure. Sciemetric Studio SE provides a wider, scalable option with advanced data analytics capabilities, and greater flexibility and depth to meet more extensive requirements.

The below comparison chart provides the highlights of the capabilities of each software tier.

SCIEMETRIC STUDIO LT

ANALYZE & VISUALIZE PART DATA

- Overlay up to 1000 waveforms
- Drag and drop data—no database required
- Part History reports
- Basic Trend and Trend Around* reports
- Apply control limits to trend charts
- Standard SPC reports

SHARE DATA

- Export data and details

MANAGE SCIEMETRIC EDGE DEVICES

- Module discovery and management
- Test set-up

* Trend Around in Part History not available in LT

SCIEMETRIC STUDIO SE

ALL FEATURES OF STUDIO LT, PLUS

GO DEEPER INTO YOUR DATA

- Analyze up to 10,000 part records at once
- Local projects or connect to an Enterprise database
- Re-process and analyze part data offline

PUT DATA TO WORK IN REAL-TIME

- Set, edit and log changes to control limits
- Real-time SPC monitors data on a continuous basis
- Alerts for test limit changes and out-of-control processes

GET ENHANCED TREND ANALYTICS

- Advanced Trend reports
- Component Property & Property data filters
- Trend Around on Part History data
- View images and trend data from machine vision systems*

* Optional

KEEP DATA SECURE & ACCESSIBLE

- Configure QualityWorX Enterprise settings
- Save and share reports
- Manage user permissions
- View and search Audit logs
- Collaborate with other users

Key Interface Features

Easy data navigation of scalar data, signatures, images, and links to raw image files.

Multiple options to control how you view the data using the context-sensitive ribbon menu.

Data is stored in a tree to mimic line layout.

All items are tracked by serial number. Click one to view single part history.

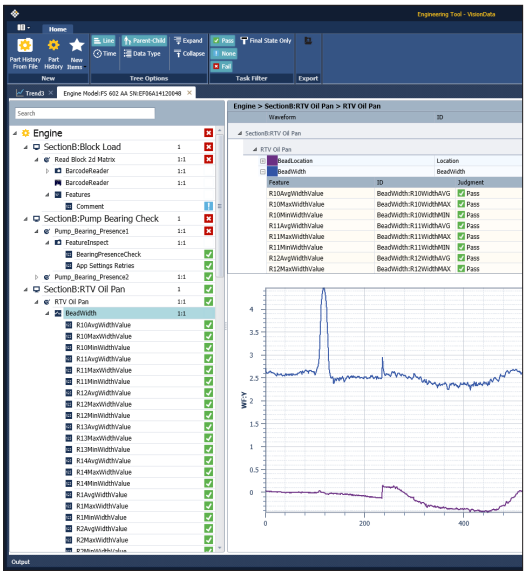
Understand Your Data from the Whole Production Line Down to a Single Part

Part History: Analyze a Single Serial Number

Part History presents detailed information on pass/fail results, waveform or image characteristics and feature checks on a single part. Every second of every step in the process is tracked.

You can see the progress of a part through various stations and tasks and compare its waveforms, images or features at any stage. Then, you can examine reruns of a task to see when the problem is and isn't present.

The ability to examine your production line at the level of a single serial number enables you to get a "batch of one" by providing insight into each part you produce.

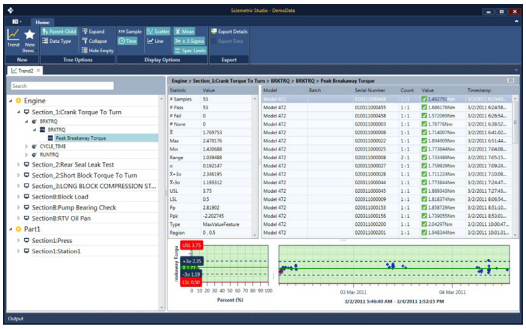


Single Part History drill down

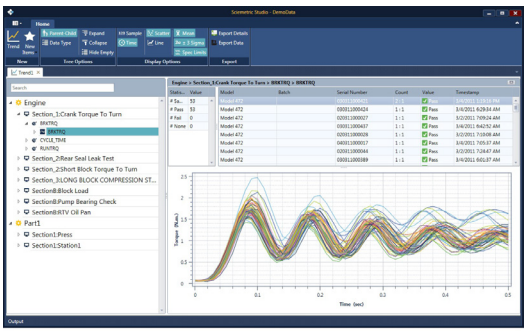
Trend: Spot Variations Over Tests or Parts

Manufacturing consistently high-quality parts depends on consistent processes. With the Trend capability, you can overlay multiple waveforms or data to spot unwanted variations at a test station or with a part. Then, drill down to the single part history to see where the problem exists, at the level of a serial number.

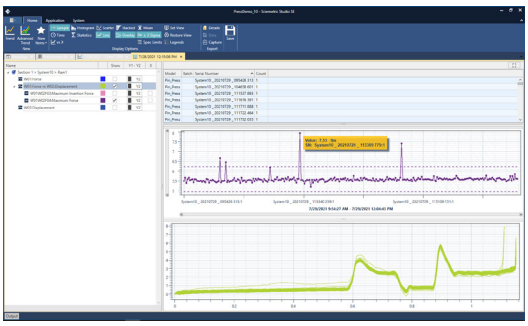
Trend reports help you identify issues affecting quality and determine ways to optimize a station's productivity. Several types of trend views are available (statistics, pareto, waveform, feature, image filmstrip, histogram) so you can isolate and see the data from all angles. The Advanced Trend report allows you to compare stations across your line to check for correlations across different process measurements.



Statistics view



Waveform overlay trend



Advanced trend

Real-time SPC: Know When Your Process is Out-of-Control

Sciemetric Studio applies Nelson rules for Statistical Process Control (SPC), in real-time or historically. You can enable rules locally, then create alerts for continuous real-time data monitoring or scan data collected in a QualityWorX database for potential rule breaches.

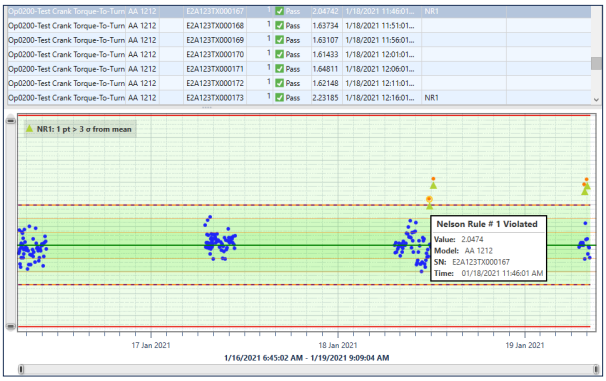
Sciemetric Studio's real-time alerting engine provides live out-of-control data detection. When an event (rule breach) is detected, alerts can be logged and sent by email for quick action.

Access-controlled audit logging enables full traceability of any SPC configuration changes and rule breaches.

SPC reports:

- X-Bar-R
- X-Bar-S
- I-MR-R, which can plot by batch/batch control
- I-MR-S

The X-Bar-S and I-MR-S reports can be dynamic based on custom grouping and feature process capability statistics (Cp, CpK).



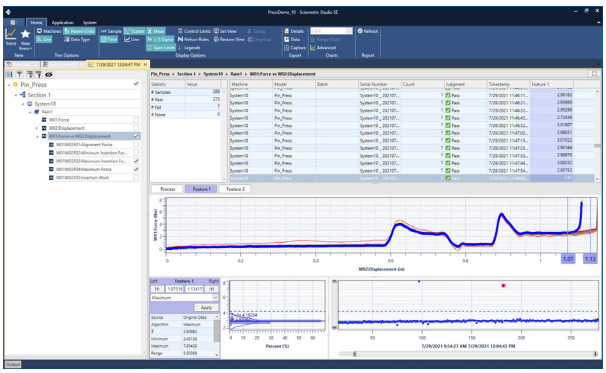
Line trend with matching data point highlight

Trend waveforms or features:

- Statistics: part counts, pass/fail count, statistics for features
- List of items in the data selection provided
- Histogram of values
- Trend by serial number or time stamp
- Station/Task: Pareto or trend of judgment
- Overlay waveforms
- Filmstrip view of images trend
- Histogram and trend of feature values and ranges
- SPC trend

Waveform Analyzer: Compare Test Parameters Without Impacting Live Production

The new Waveform Analyzer introduces "what if" functionality to the Sciemetric Studio software. When you have outliers in your data attributed to faulty parts, use the Waveform Analyzer to apply multiple Processes and Features to your data set offline to compare the effects of new analysis methods on your data without impacting live production. This allows you to determine the most effective test limits and method(s) of analysis for effective, continuous defect detection on your line.



Waveform Analyzer

Industry 4.0 Analytics for Smart Manufacturing

Tools like Sciemetric Studio can help you harness the power of the data generated on your production line to get alerted to issues in real time and visualize them so you can rectify the problem. The sooner you pinpoint the anomaly, the less impact it will have.

Sciemetric Studio includes several important capabilities that will help you realize the promise of Industry 4.0 on your production line:

- ✓ **Visualize all types of data (scalar, waveforms, images) so no information is left behind**
- ✓ **Establish test limits or apply Nelson rules (for SPC)**
- ✓ **Receive real-time alerts to get notified of SPC rule breach events**
- ✓ **Log out-of-control events for full traceability of SPC configuration changes and rule breaches**
- ✓ **Examine data multiple ways to look for trends that indicate issues with processes or parts**
- ✓ **Trace the root cause of a problem by drilling down to an individual part's history at the level of a serial number**

Process efficiency and part quality don't need to be at odds. With Sciemetric Studio, you can detect problems on your production line as they occur and pinpoint the source with the certainty that only data can provide.

Pull in data from your processes with Sciemetric EDGE

Sciemetric EDGE is a compact, universal Industry 4.0 platform that helps you monitor and control your industrial processes. A complimentary, basic version of Sciemetric Studio LT comes with every Sciemetric EGDE order, allowing you access to review data from your processes and optimize your applications. For more information on Sciemetric EDGE, visit **www.sciemetric.com/edge**

sciemetric EDGE

Technical Requirements

MINIMUM SYSTEM REQUIREMENTS

- 1 GHz 64-bit processor
- 8 GB RAM
- 3 GB hard disk
- DirectX 10 graphics device with WDDM 1.0 driver

OPERATING SYSTEM

- Windows 10 64-bit (.NET 4.5)

FILE TYPES SUPPORTED

- Sciemetric Single Part History (SPH) files*

ADDITIONAL REQUIREMENTS FOR SCIEMETRIC STUDIO SE

- Sciemetric Studio SE can only connect to a QWX 3.41 database or higher
- Enterprise Management Services must be installed (see QualityWorX datasheet for details)

* Data from non-Sciemetric systems are converted to SPH when stored in QualityWorX.

Get ahead of production line issues with Sciemetric Studio. Learn more at www.sciemetric.com/studio

About Sciemetric

Since 1981, Sciemetric's process monitoring and quality management systems and software have enabled some of the world's leading industrial companies to gain visibility into and control over their processes. Process Signature Verification (PSV) technology provides the most accurate determination of process health and part quality while collecting all data. Our customers use Sciemetric's analytic tools to transform the data into actionable information to reduce costs, manage quality, increase efficiency, and maximize yield while providing proof of process compliance and complete traceability. Visit sciemetric.com for more information.

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