Tool Data Explorer*
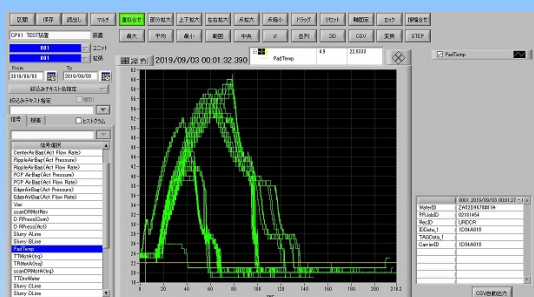
Real-time monitor and analysis of equipment data

Supports all necessary functions from analysis to monitoring of device data.

Waveform display

- Read device data in CSV format
- Waveform display with a minimum interval of 1 msec
- Waveform time series and overlay display
- Display waveform operation, text refinement display
- Waveform refresh display
- Arbitrary waveform conversion (differentiation, integration, moving average etc.

Statistical analysis

- Automatic variable selection.
- Linking device data and measurement data.
- Statistical chart and histogram display.
- Correlation chart display.
- Multivariate analysis such as principal component analysis, multiple regression analysis, Mahalanobis Taguchi system, PLS regression.
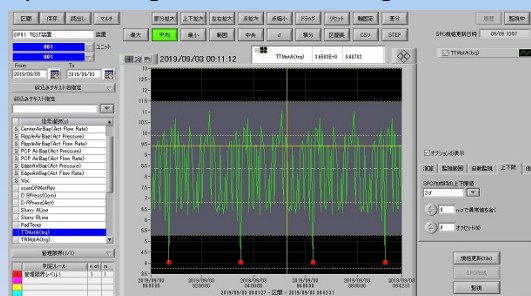
Waveform Monitor

- Guard band monitoring of waveforms.
- Labor saving of setting by automatic guard band generation function.
- Computational monitoring between multiple waveforms.
- Monitoring error notification (pop-up display, FTP, E-Mail, file writing).

SPC Monitor

- Automatic SPC generation and SPC monitoring.
- JIS / WECO rules and their extended rules.
- Upper / lower limit value monitoring, number of processing times monitoring.

Equipment data collection

FTP (CSV)

Data Server

Wave Data Gateway

Data Analysis

TDX Analyzer

Equipment Monitor

TDX Monitor

Dura Systems

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Tool Data Explorer

Function and feature

- **TDX performs online processing from "instrument data collection" → "waveform analysis and monitoring" → "statistics extraction from waveform" → "statistics monitoring" → "multivariate analysis".**
- **Realizes scalable monitoring and analysis from one device to thousands.**
- **Provides optimal monitoring and analysis logic according to the operation.**
- **Automatic threshold adjustment function supports automatic setting.**
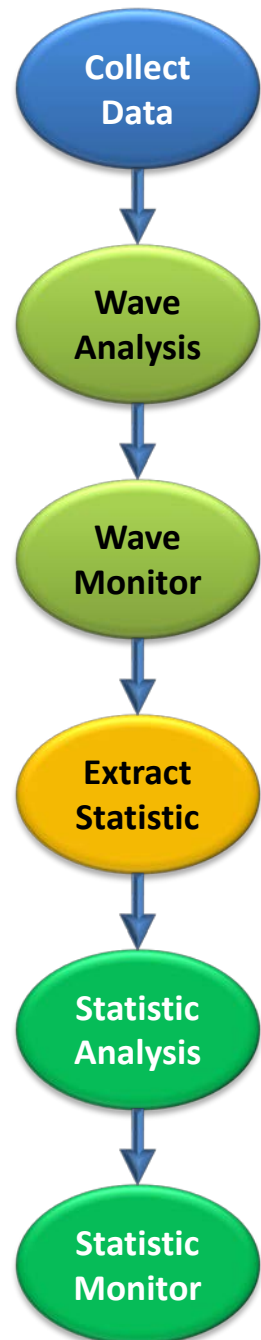
Basic functions

Read CSV data	Cuts out a monitoring analysis section from continuous CSV data. Interpolates the sampling interval to a constant value. Display data is optimized by unit conversion and arbitrary waveform calculation.
Equipment data management	Save CSV data in binary format. You can set the copy and retention period.
Filter display data	Filter the displayed waveforms and statistics by text values such as product information.
Data output	Data export, Excel output, CSV file output.
Waveform display	Waveform superposition, origin adjustment and waveform conversion operations are performed.
Waveform scatter plot	Graph the time-series correlation of two waveforms.
Statistics display	Overlay the representative values extracted from the waveform and display the histogram.
Waveform refresh display	The waveform is automatically refreshed.
Monitoring analysis logic creation	Create monitoring and analysis logic for waveforms and statistics. Extracts the representative value from the partial waveform.
SPC monitoring	Simultaneously generate multiple SPC charts and execute SPC monitoring.
Statistical chart	Displays statistics trend graph, scatter plot, histogram and normal probability graph.
Principal component analysis	Perform principal component analysis and display score and loading graphs.
regression analysis	Executes multiple regression and PLS regression calculations, and displays predicted values, actual values, and residuals.
Discriminant analysis	Perform Mahalanobis Taguchi system and Hotelling T2 calculations.
Auto start	The TDX module required for monitoring is automatically started.
Monitor	Execute device data monitoring and display an error pop-up. Output the monitoring result file, FTP transmission and E-Mail transmission.
Monitoring status display	The device monitoring results are aggregated and displayed.

Operating environment

Supported OS	Microsoft Windows 8, 10 and compatible server OS
CPU	CPU with performance equivalent to or better than Intel® Core i7 processor (64bit)
Memory	8GB or 16GB is recommended.
HDD/SSD	1 TB PCI/Express SSD is recommended.
Notes on security software	Depending on the software, disk I / O security checks may degrade TDX response speed.。

Collect Data → Wave Analysis → Wave Monitor → Extract Statistic → Statistic Analysis → Statistic Monitor

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