statHammer

by predisys

Real-time predictive analytics and process control for Azure IoT

Predictive Analytics for Azure IoT

Connect your IoT data directly with a real-time, browser-based, predictive analysis environment. Explore and learn your process with data search, filtering, statistical charts and summaries.

Process Control Behind the Scenes

Automate analytical processes that detect statistical anomalies in your data stream in the background. Create events that trigger emails and workflows in Teams, Office365. Send messages to other applications or back to IoT Hub.

Advanced Correlation Analysis

Drill down into advanced multivariate statistics to understand upstream downstream correlations and interactions in your process. Identify outliers and critical changes in the process over time.

SPC Charts and Analytics

VARIABLE CONTROL CHARTS
- Xbar and Sigma chart
- Xbar and Range chart
- X/MR, I/MR charts
- MX/MR (Moving Average) chart
- Three Way Control chart
- Run chart
- Individuals (XmR) chart
- Cusum chart
- Short Run chart
- EWMA chart
- Z chart
- W chart
- Capability Histogram
- Normal Probability Plot
- Autocorrelation chart
- OOS/OOC Pareto chart
- Univariate Box-Whisker plot

- Levy-Jennings chart
- CV chart

OTHER CHART TYPES
- Scatter plot
- Lines chart - standardized
- Lines chart - normalized
- Box-Whisker plot
- Anova
- Fast Fourier Transform (FFT)

MULTIVARIATE CHARTING
- Normalized Box–Whisker plot
- Normalized lines chart
- Standardized lines chart
- SPC Charting for multiple parameters
- Principal Component Analysis (PCA)
  - Scree Chart
  - Loading plot (vector)
  - Loading chart (lines)
  - Score plot

OTHER CHART FEATURES
- Chart Selector for alternate charts
- Alarms and Out-of-Control points (OOC) visualized in two severity levels using colors
- OOC/OOS Annotations
- Zoom capability
- Tooltips for context information
- Automatic chart refresh upon new data update or external trigger
- High light feature to visualize outliers or specific subset of data
- Colors with legends to help differentiate subsets of data
- Interactive layout with chart maximize minimize feature
- Multiple variables or one individual variable can be selected in the chart layout
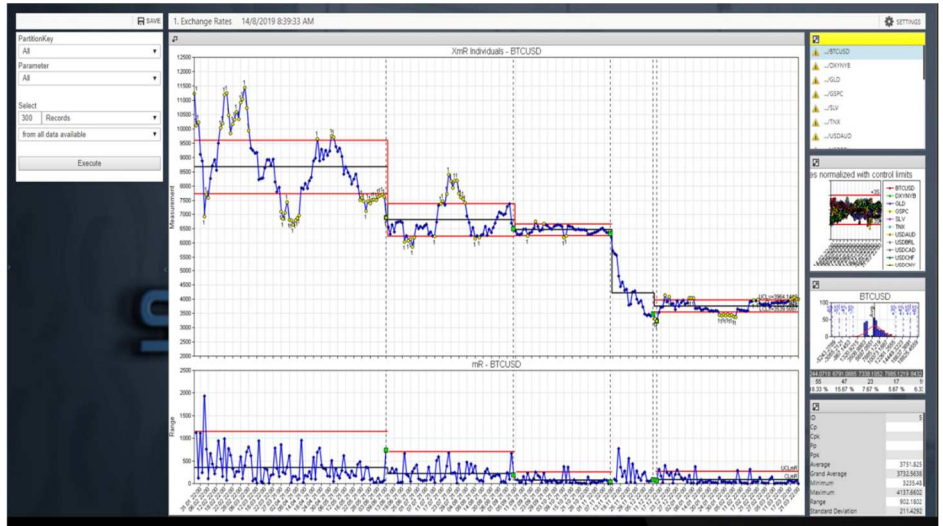

DATA SHEET

Statistical Calculations

PROCESS CAPABILITY STATISTICS

- Cp
- Cpk
- Pp
- Ppk
- Cpl
- Cpu
- Ppu
- Ppl
- Cpm
- Actual measurements above USL
- Actual measurements below LSL
- Measurements inside specs
- Measurements outside specs
- Estimated above USL
- Estimated below LSL
- Estimated PPM above USL
- Estimated PPM below LSL

OTHER STATISTICS

- 3S,, 4S, 5S, +6 (R, S), +/- values
- Anderson Darling Statistics
- Average
- Coefficient of variation
- Correlation
- Critical value
- Degrees of freedom
- Grand Average
- Kurtosis
- Maximum and Minimum
- Median
- Nominal
- Normality Test (Anderson Darling)
- Number of subgroups
- Number of outliers
- Offset
- Range

- Skewness
- Stability Index
- Subgroup size
- Z

Additional Features

CONFIGURATION

- User-friendly, web-based configuration wizard
- No coding or scripting needed
- Save several analysis configurations and short cuts to your portal
- Set up real time monitoring dashboards using Statistical Control Charts

CONTROL LIMIT CALCULATIONS

- Automatically calculated SPC control limits that can be locked with full audit trail and revision history

CORRELATION

- Correlation of process parameters with Scatter and Histogram Box-Whisker tools
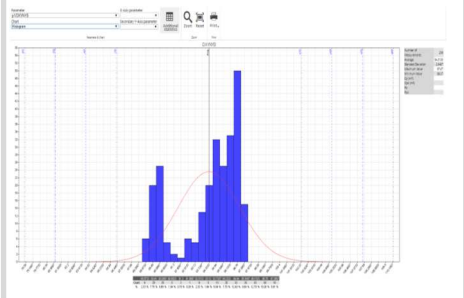- Correlation Table

SPC RULES

- Western Electric/Nelson rules
- Graphical indication of rule status

INTEGRATION

- Integrated with cloud gateways like Azure IoT Hub, Azure Event Hubs and Azure SQL and Storage
- Integrated with Azure Logic App Service to allow configuration of custom workflows and email notifications etc.
- Send out-of-control messages (OOC) and events generated from statistical rules back to IoT hub to control your IoT devices (upcoming future release)

SCALABILITY

- Standard multitenant application
- Dedicated customer specific instance for high performance requirements
- Connects with multiple parallel data sources