



Tag Advanced Functions

Helping Customers Increase Asset Reliability & Availability with a Quality Data Foundation

OptiRamp Tag Advanced Functions (TAF)

Tag Advanced Functions is a powerful tool that can use simple mathematical equations or delve into complex mathematical calculations to derive valuable analysis

Features

- Provides an environment for building simple mathematical expressions, totalizers and complex statistical analysis
- Calculates a performance and the real-time deviation from target or expected value.
- Alarms abnormal conditions and deviation from target in real time.
- Track Planned vs. Actual Production Profiles
- Generates a forecast of future production rates and to determine the expected reserves.

Template Formula

Purpose: Perform mathematical calculations on VTS tags.

Allows for simple math operations – Add, subtract, multiply, divide.

Allows for more simple C# functions with sqrt(), log(), and/or statements, min and max functions, normal distribution

The image displays a collection of mathematical and scientific content on a dark blue background. On the left, there are several algebraic equations: $126 = 6xy$, $2x + 2y = 20$, $f(x) = a(x-x_1)(x-x_2)$, $ab+ac = a(b+c)$, $a\left(\frac{b}{c}\right) = \frac{ab}{c}$, $\frac{\left(\frac{a}{b}\right)}{c} = \frac{a}{bc}$, $\frac{a}{\left(\frac{b}{c}\right)} = \frac{ac}{b}$, and $\frac{a}{b} + \frac{c}{d} = \frac{ad+bc}{bd}$. In the center, there are inequalities: $f(x) \leq 5$, $X^2 - 4X + 5 \leq 5$, and $X^2 - 4X \leq 0$. To the right, there are more algebraic identities: $(a+b)^2 = a^2 + 2ab + b^2$, $\frac{a}{b} - \frac{c}{d} = \frac{ad-bc}{bd}$, $\frac{a-b}{c-d} = \frac{b-a}{d-c}$, $\frac{a+b}{c} = \frac{a}{c} + \frac{b}{c}$, $\frac{ab+ac}{a} = b+c, a \neq 0$, and $\left(\frac{a}{b}\right) + \left(\frac{c}{d}\right) = \frac{ad}{bc}$. A graph shows a curve in the first quadrant with a point labeled (0,1) and the equation $y = a_x$. Below the graph, a calculation is shown: $M = \frac{0.046765 \text{ mol}}{3 \text{ OL}} = 0.016M$. At the bottom, there are chemical structures of a polymer chain with repeating units containing hydroxyl groups and methylene groups, and the atomic weight of Helium: $\text{He} = 4.002602$.

Decline Analysis

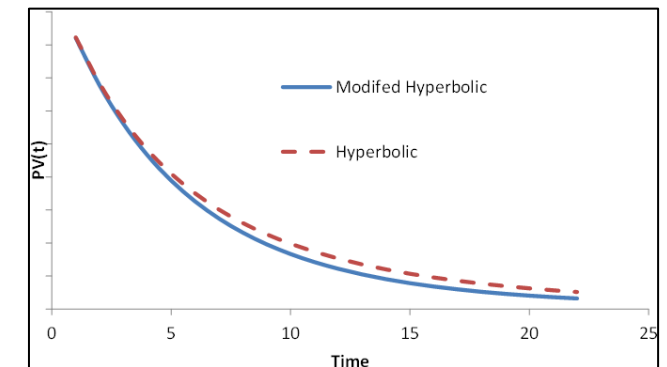
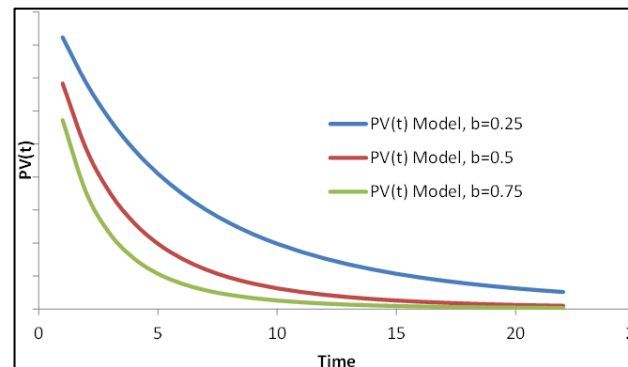
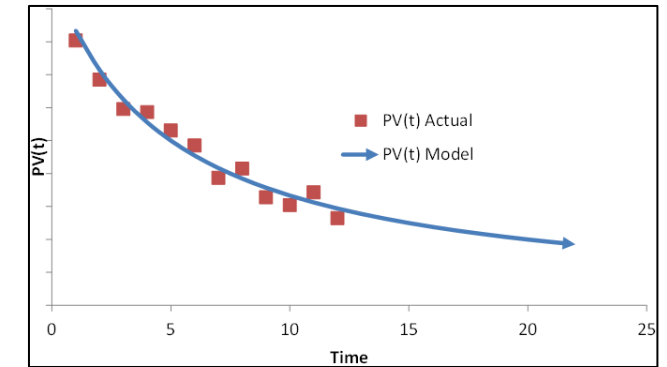
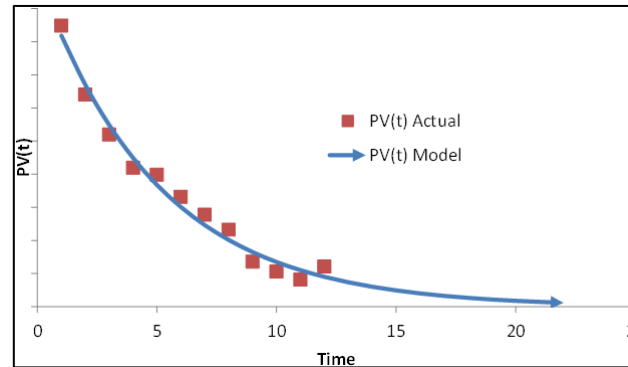
Purpose: Track variables for declining performance

Trend Analysis:

- Exponential decline
- Harmonic decline
- Hyperbolic decline
- Modified hyperbolic decline

Useful for tracking:

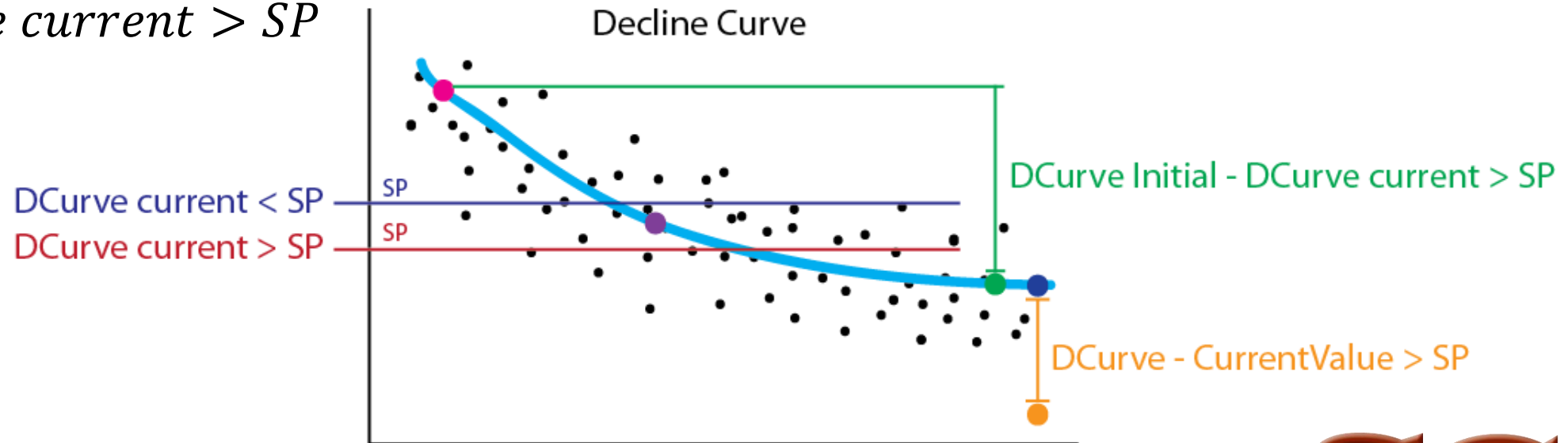
- Production decline
- Rotating Equipment efficiency decline



Decline Analysis

Notifications:

- $DCurve - CurrentValue > SP$
- $DCurve\ initial - DCurve\ current > SP$
- $DCurve\ current < SP$
- $DCurve\ current > SP$



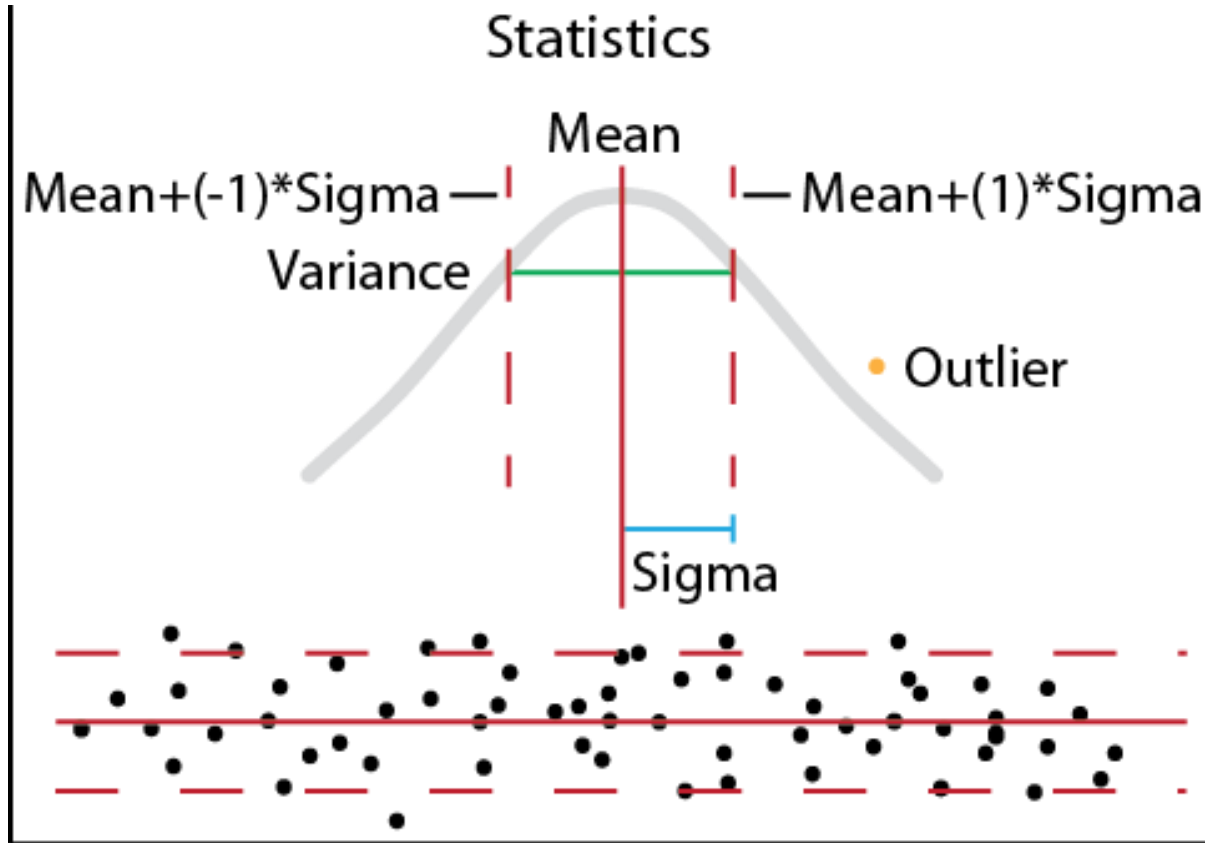
Statistical Analysis

Purpose: Determine certain process characteristics using statistics

Statistics:

- Mean, $\bar{X} = \frac{\sum_{i=1}^n X_i}{n}$
- Median, $\tilde{X} = MID(X)$
- IQR
- Range, $R = X_{max} - X_{min}$
- Standard deviation, $s = \sqrt{\frac{\sum_{i=1}^n (X_i - \bar{X})^2}{n-1}}$
- Normal distribution plots

Statistical Analysis



Notifications:

- *Outlier* > *Sigma* × *SP*
- *Variance* > *SP*

Maintenance Analysis

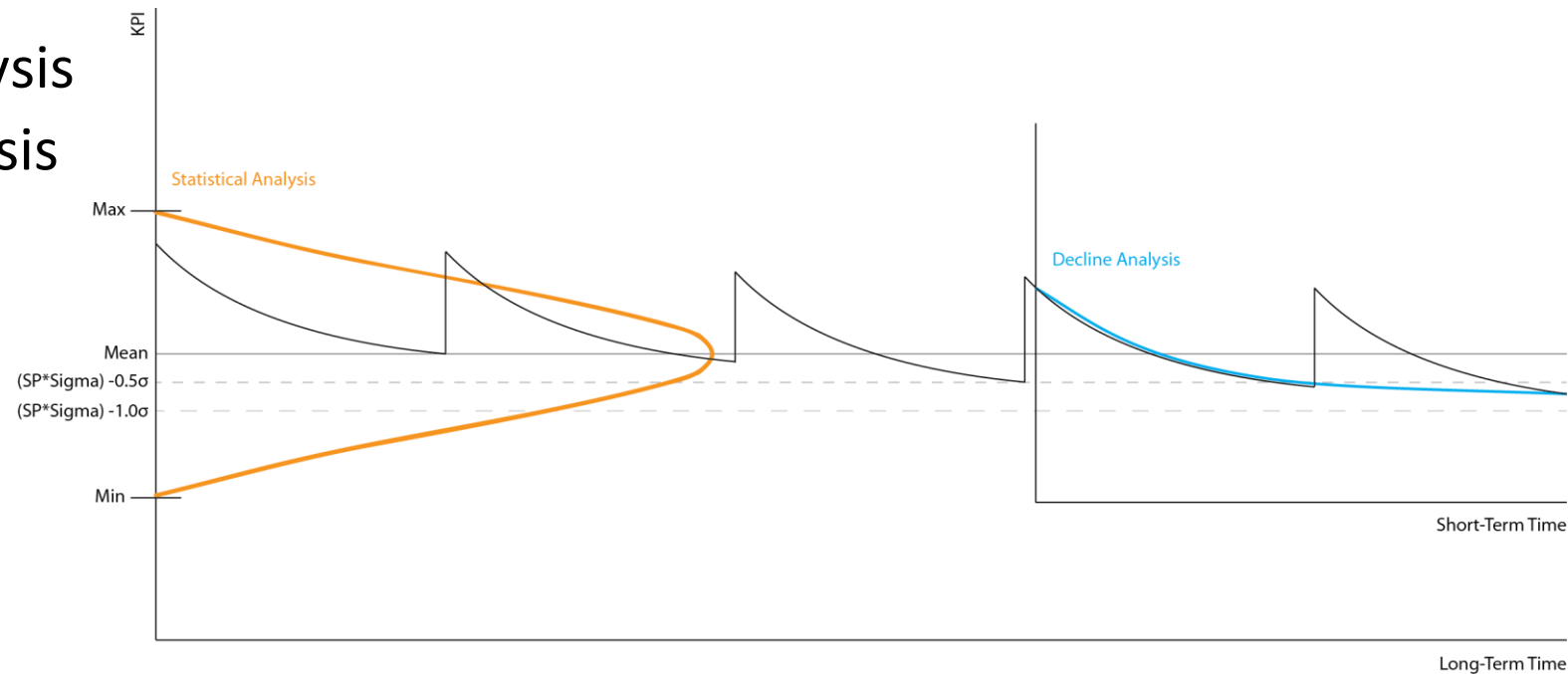
Purpose: Track KPIs to maintain equipment efficiency

Analysis submodules:

- Short-Term Trend Analysis
- Long-Term Trend Analysis

Notifications:

- $I > M + SP \times \text{Sigma}$
- $I < M + SP \times \text{Sigma}$



Functional Analytics

Purpose: Complex calculations based on multiple event types

Analytics submodules:

- Event Filtering
- Formula
- Inputs/Outputs
- Notifications

Functional Analytics is used to calculate complex economics or production based on certain events

