AppliedSPC – Data Sheet v3

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Real-Time
Statistical Process Control Software

Monitor – Improve – Save

AppliedSPC from Applied Industrial Systems Ltd. provides real-time Statistical Process Control functions for process and manufacturing industries.

The package is aimed at providing simple to use and configure functions that deliver tangible benefits to production industries. AppliedSPC aims to de-mystify the use of SPC and provide an alternative to hard to configure and use packages.

Overview

AppliedSPC provides a basic SPC facility that includes both real-time charts and graphing for reporting of batch or shift data. The software provides production engineers and managers with the ability to understand when the variability of the process is outside of the normal variation that can be expected. This provides the base information for process improvement. The overview screen shows summary data for of all monitored characteristics, including a Red / Amber / Green indication for process quality:

Production Line	Batch	Characteristic	A^2	Cpk	Ppk	Ppk > Cpk	SPC Alarms	
Line 1	A-062102	Can Length	0.61	2.13	3.20	>		SPC Chart
		Bottom Depth	0.53	3.40	1.67			SPC Chart
Line 4	B-062102	Contact Height	0.41	4.36	1.79			SPC Chart
		Ecogorge ID	0.26	2.50	2.43			SPC Chart
Line 7	C-062102	Ecogorge OD	0.34	3.10	1.68			SPC Chart

AppliedSPC can be used for continuous or discrete manufacturing lines – basically any production where there are one or more output variables that has target limits which define the product quality (such as temperature, thickness, width, weight colour etc).

The software includes a ‘learning mode’ that configures the statistical warning and action limits based on stored data from known good production. This significantly simplifies the set up time and also means that the limits can be re-learnt as the process is improved.

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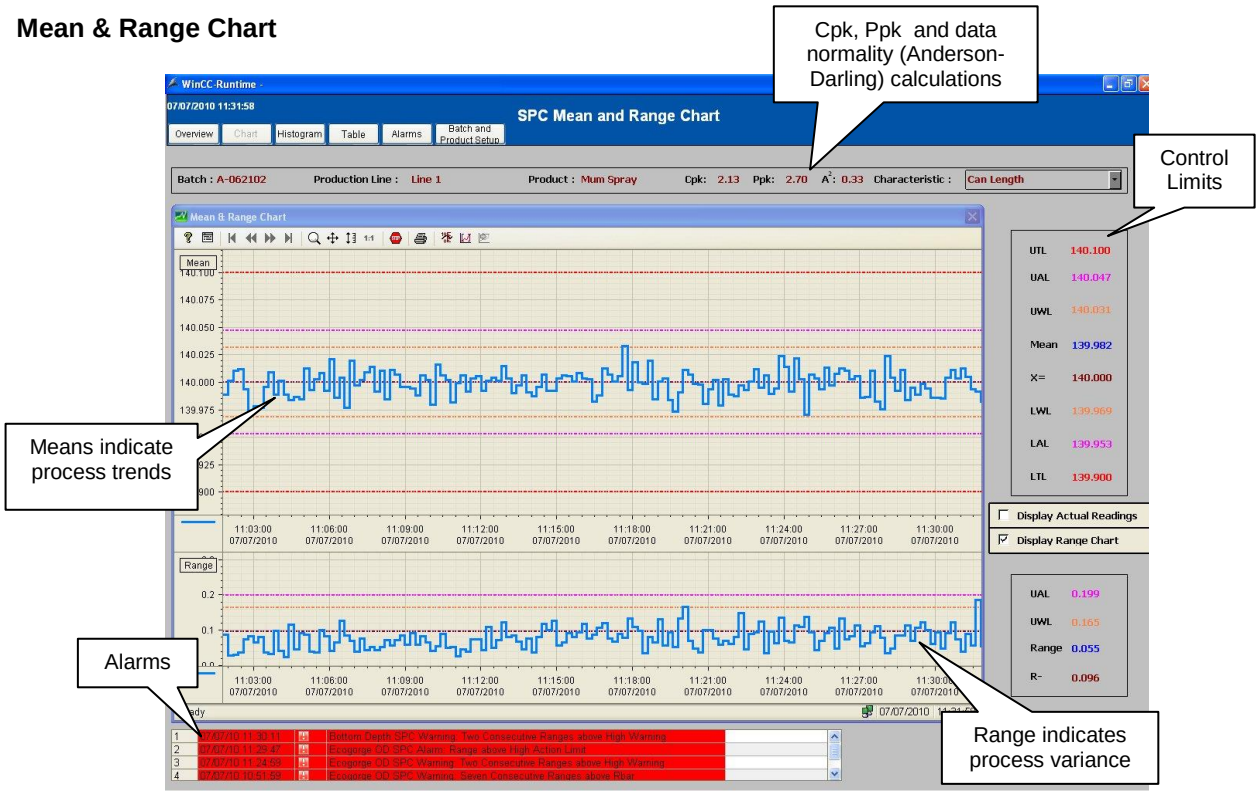
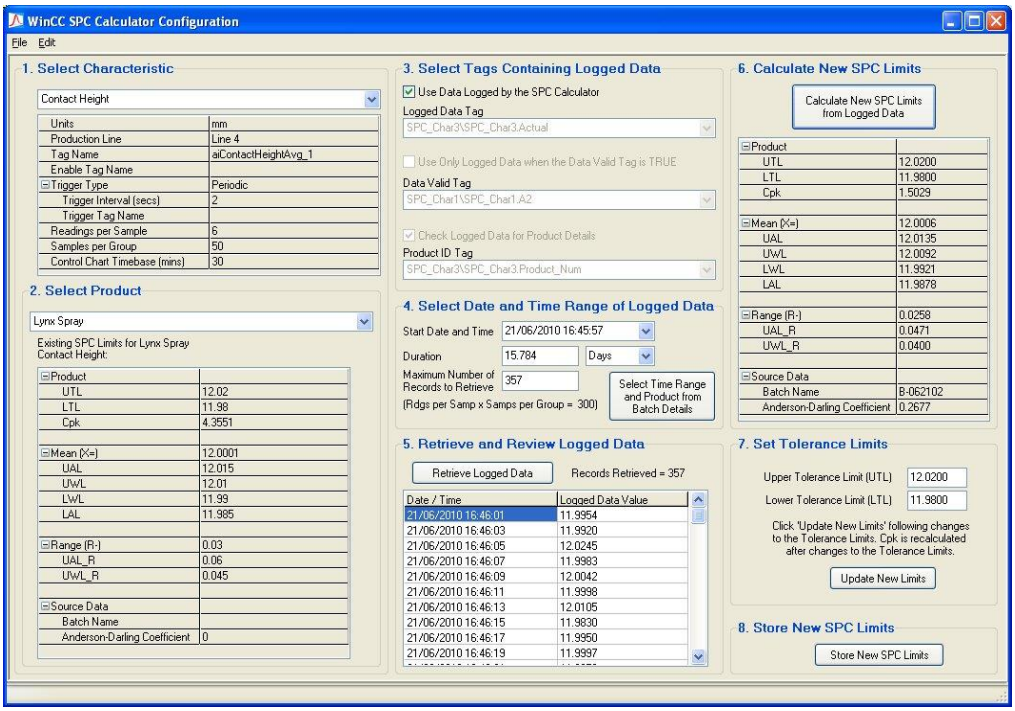
Mean & Range Chart



Set Up & Learning

AppliedSPC supports multiple products, each with multiple measured characteristics being produced on multiple production lines. The set up dialogs allows definition of which WinCC tags hold the measurements for each characteristic, the trigger conditions for each new sample measurement and tolerance limits.



In learning mode, the software can analyse stored data on each characteristic and perform calculations to derive process capability (Cpk), warning and action limits. Learning mode can use pre-existing logged data; alternatively, it can calculate limits from batches of good production.

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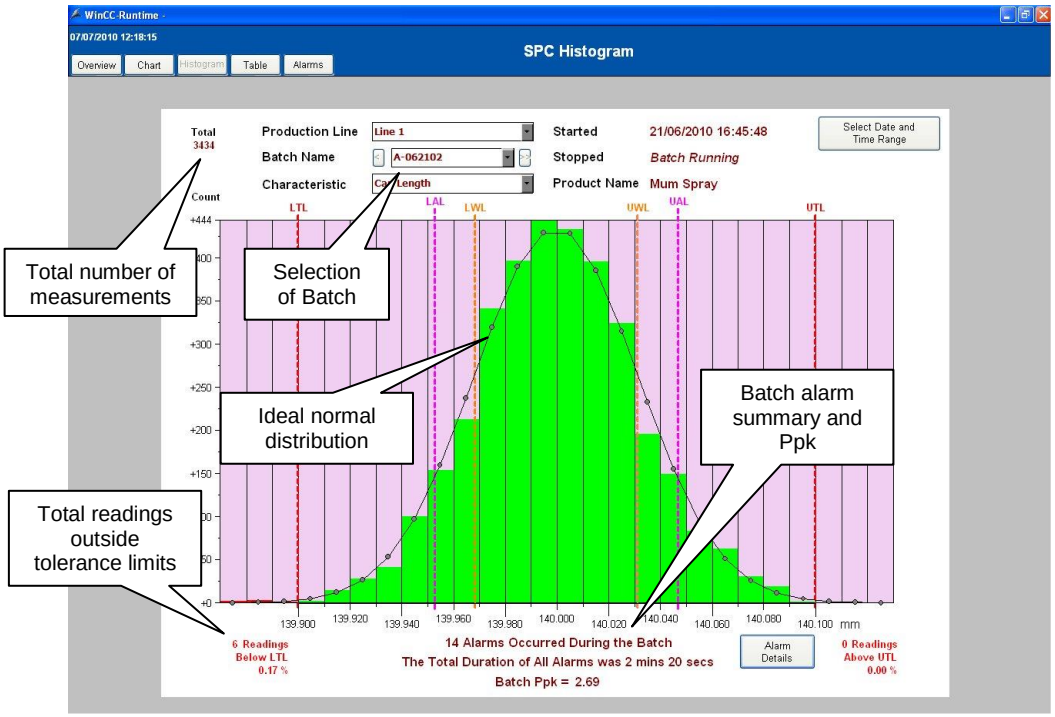
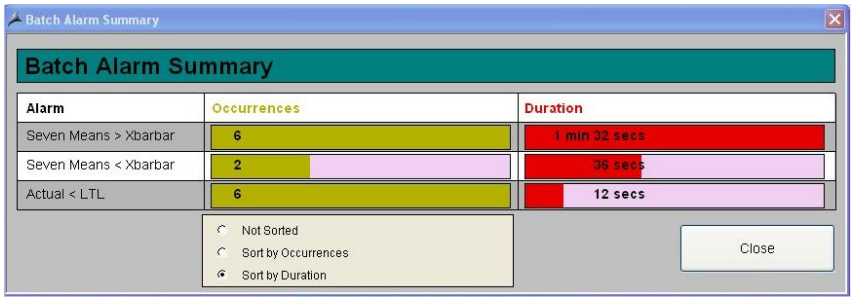
Batch Histogram

At any time during or after completion of a batch a histogram can be displayed (or printed) showing the distribution of all the measurements made for that batch. The graph is based on the raw measurement data so that the graph represents a true distribution of the measurements.



The different alarms that occurred during a batch and their duration can be displayed:



Alarms

Alarms are generated on warning limits and action limits for the mean, range and individual out of tolerance measurements.

In addition alarms are generated on events with the same statistical probability for an in control process as the warning and action limits.

For example, an alarm is generated where a run of readings (more than 6 consecutive means) are on one side of the target value.

An alarm is also raised where there is an abnormal trend in the data (more than 6 consecutive means all rising or all falling in value).

Alarms provide the mechanism to warn the process engineer that the variance in the process is outside of the expected limits for the process – i.e. the process is statistically out of control.

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Config

AppliedSPC allows the following to be configured:

- Number of measurements per sample (minimum 4)
- New measurements triggering on period (continuous) or on event (discrete)
- WinCC event tags and measurement enabling tags
- Addition of new characteristics, new products and new production lines
- Transfer of statistical data from known characteristics to new products
- Appearance of charts (Standard WinCC configuration)

WinCC Base

AppliedSPC is based on standard Siemens monitoring software WinCC

AppliedSPC is based on the Siemens SCADA software WinCC (v6 and above). The software uses standard WinCC time based charting and makes full use of the WinCC SQL database. All current and historical SPC data is available to standard WinCC reporting tools and the charts can be accessed by plant-wide central user administration using web tools such as Web Navigator.

AppliedSPC requires no WinCC external tags, it uses existing external tags as the source of the data to be analysed.

AIS can deliver AppliedSPC as either a stand-alone application for integration with an existing WinCC server or alternatively, can supply the WinCC software as part of the overall package.

In a system with WinCC Redundant servers, AppliedSPC runs on a standard WinCC client configured to access data from the redundant servers.

AppliedSPC software is developed under the AIS ISO9001 & TickIT quality system.

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