

SPC_for_WinCC – Data Sheet v1.1

On-Line Statistical Process Control Software for Siemens WinCC



WinCC is the SCADA software product from Siemens that is used extensively to monitor and control industrial processes. The software is generic and can be applied across all industrial processes – whether or not the plant automation is based on Siemens equipment.



Applied Industrial Systems Ltd. (AIS) are Siemens Solution Partners who develop WinCC based systems. AIS also have extensive experience in the design and development of measurement systems.

SPC_for_WinCC is an AIS application product that adds Statistical Process Control (SPC) functionality to the WinCC software. The package provides mean and range charts with a batch graphing facility. The software is aimed at on-line applications – but can include inputs from off-line measurement instruments and manually entered data.

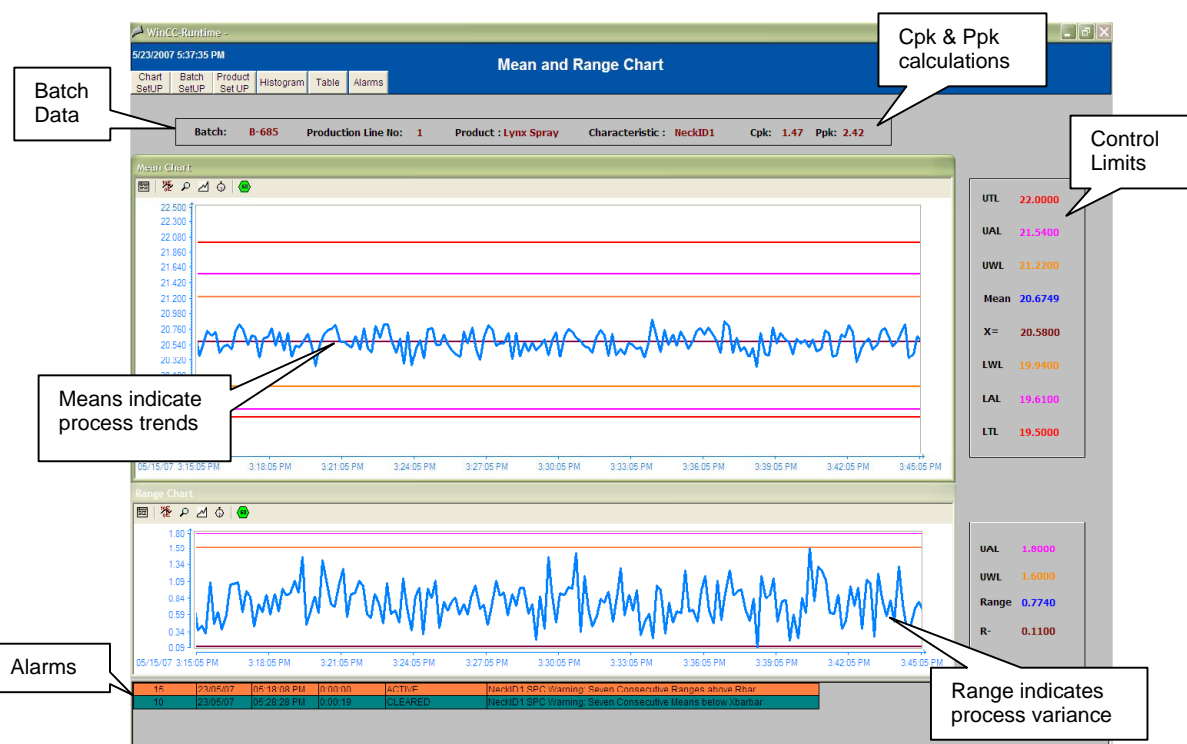
Overview

Why SPC?

SPC_for_WinCC 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 from the process. This provides the base information for process improvement.

SPC_for_WinCC 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, dimension, colour etc).

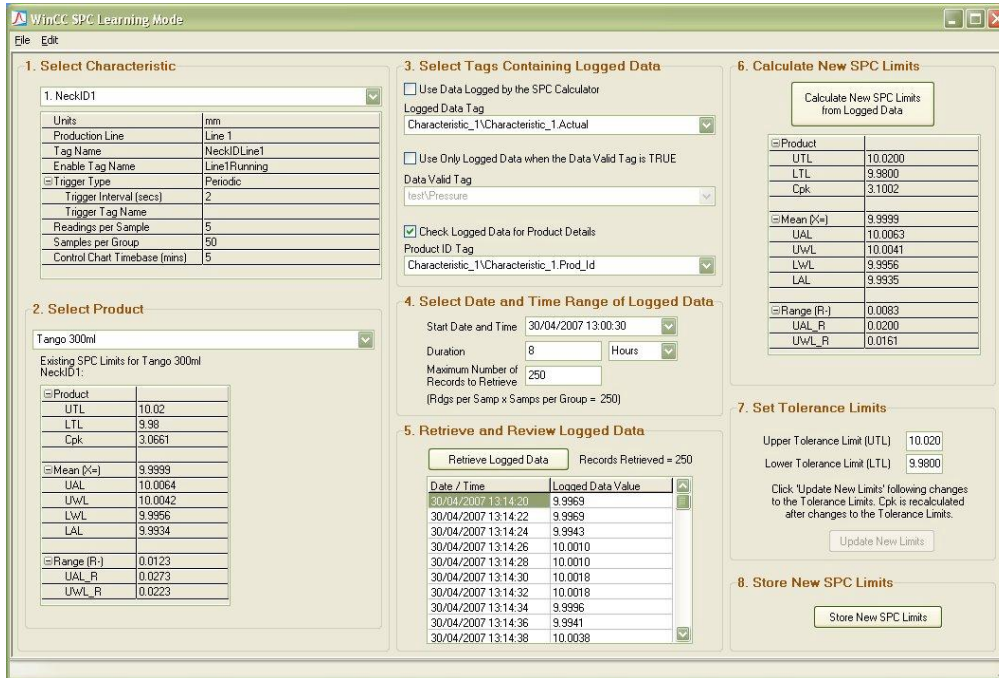
The software includes a 'learning mode' that configures the statistical warning and action limits based on stored data from known good production. This significantly simplifies the set up time and also means that the limits can be re-learnt as the process is improved.



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Set Up & Learning

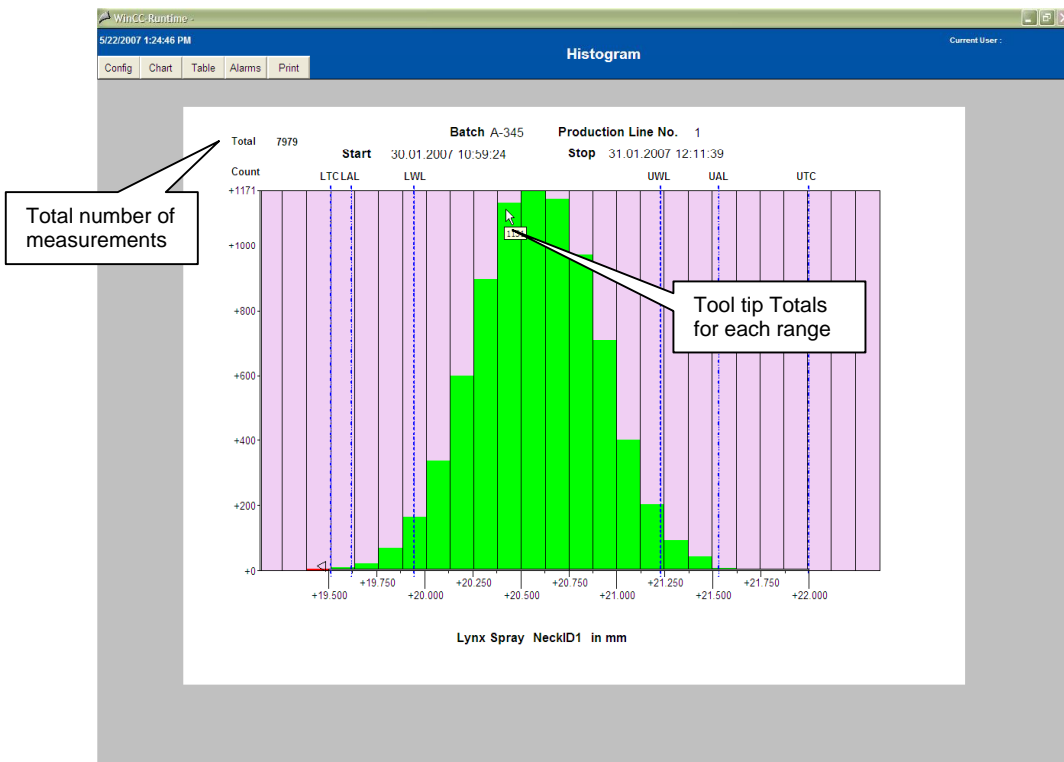
SPC_for_WinCC supports multiple products, each with multiple measured characteristics being produced on multiple production lines. The set up dialogs allows definition of which WinCC tags hold the measurements for each characteristic, the trigger conditions for each new sample measurement and tolerance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

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.



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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.

Config

SPC_for_WinCC 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 Distribution Compatibility

SPC_for_WinCC is compatible with 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.

AIS can deliver *SPC_for_WinCC* 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.



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

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Solution Partner

Automation

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