DataNet Quality Systems Knowledgebase

How can I create a control test to count the number of samples in a subgroup that are out of spec?

- In WinSPC 8.3.4, a new subgroup level control test type has been added that allows a user to setup a custom control test that counts the number of readings in a subgroup that meet a certain criteria (such as the number of readings outside the spec limits). Using this new subgroup level control test type and the existing trigger functionality, you can configure your data collection operators to be notified, for example, when at least 10% of the samples in a subgroup are outside the specification limits. Previously, user defined subgroup level control tests could only be of a "Run" or "Trend" type. WinSPC 8.3.4 adds a new "Count Readings" control test type and is available on the "Definition" tab of a user defined control test. Please note that the layout of the window has been altered slightly to accommodate the new "Count Readings" test type, but the "Run" and "Trend" test type functionality has not been changed in the WinSPC 8.3.4 release.
The following options are available for the "Count Readings" test type:
  Conditional Operator - This option allows you to define the conditional operator that will be used once the reading count has been determined. Available options include "At Least", "At Most", "Less Than", "More Than", "Exactly", and "Anything But". Number (or percent) of Readings - This option allows you to define the number (or percent) of readings in the subgroup that should be looked at for the purpose of this test. You should type in the number (or percent) into the text box and then select how this number is interpreted (as an actual number of "Readings(s)" or as a "% of Readings"). Relationship - This option defines the relationship that the test should look for between the readings and the defined limits. Possible options are "Above", "Below", "Inside", "Outside". The "Above" and "Below" options allow definition of a single limit, while the "Inside" and "Outside" options allow the definition of two limits. Lower Reading Limit - This option specifies the lower limit that the readings should be compared against. The "Configured Values" drop down has some common options of "URL", "USL", "Target", "LSL", and "LRL". You can also select "Custom Value" to define a specific value to test against. This option is not available if the Relationship is configured to "Below". Upper Reading Limit - This option specifies the upper limit that the readings should be compared against. The "Configured Values" drop down has some common options of "URL", "USL", "Target", "LSL", and "LRL". You can also select "Custom Value" to define a specific value to test against. This option is not available if the Relationship is configured to "Above".

Like other test types, once you have the test defined, you will need to click on the "New" button to add the test definition to the list of conditions. Multiple test types can be combined into a single control test. For example, a subgroup should be in violation if the subgroup is outside the control limits (a "Run" type test) and if 1 or more readings are outside the specification limits (a "Count Readings" type test).
Examples:
Example 1: A control test that will cause the subgroup to be in violation if exactly 1 reading is below the lower specification limit:
Example 2: A control test that will cause the subgroup to be in violation if more than 75% of the readings in the subgroup are above the target:
Example 3: A control test that will cause the subgroup to be in violation if less than 80% of the readings in the subgroup are within spec:

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