Control Chart for Individual Measurements

Movira 2.8
Statistical analysis

Instructions for Use

This application produces a control chart from a time series of numbers and analyzes the data to help you decide if these numbers have been generated from a process which is in a state of statistical control. The control chart indicates that the process is not under control when one of these criteria is met (Western Electric Rules) :

• One dot outside of the control limits

• Eight successive dots on the same side of the average line

Movira analyzes the input and prepares a graph (pict format), showing the series of data points, the Upper Control Limit (UCL) and the Lower Control Limit (LCL). The statistical characteristics of the data (average value, virtual sigma, values for the UCL and LCL) are also presented numerically. You can immediately see that the process is under control when there is no dot beyond the control limits and when there is no series of more than 7 dots on the same side of the average. *Movira* doesn't work when there are less than 10 data. It can process up to 45 registered data.

Virtual sigma is different from the standard sigma which would be displayed by a hand calculator. The control limits calculations are made with virtual sigma because the standard sigma can lead to wrong conclusions. By definition, virtual sigma is equal to the average moving range multiplied by 0.886

For using *Movira*, type the data on the window, one entry at a time, with return after each entry, including the last one. Then click *Go*. The graph and the results will immediately appear. The window can't display more than 32 dots, but you can graph up to 45 dots and view them by moving the slider at the bottom of the screen. You can also enter data by writing the series on a word processor, placing the numbers in a column at the left side of the page, each number followed by return. Then copy the column of numbers to the clipboard and paste them on the window. Movira does not work with negative numbers ; so if all your data are not positive numbers, add a constant so that the smallest one be positive. Next you must subtract the same constant from the output.

You can easily save the input and the calculated parameters for using them in another program. Go to the Menu : Special > Data Card. Assign a title to the untitled file (measure, date) and save it. You can also save the control chart and print it by going to the Menu : Special > Control Chart.

I am indebted to Myron Tribus for his friendly help.

Versailles, 4 September 2001

Revised 10 December 2012

Jean-Marie Gogue

Source : http://www.fr-deming.org/software.html