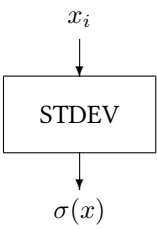


Block STDEV

The STDEV block calculates the standard deviation of its input signal over a complete simulation run.



|            |            |
|------------|------------|
| Name       | STDEV      |
| Function   | fb0021     |
| Inputs     | 1 ... [50] |
| Outputs    | 1 ... [50] |
| Parameters | 0          |
| Strings    | 0          |
| Group      | I          |

Inputs

i Any signal  $x_i$

Outputs

i Standard deviation  $\sigma$  over all  $x_i$

Parameters

None

Strings

None

**Description** For the standard deviation  $\sigma$  of a set of numbers  $x_i, i = 1 \dots N$  two slightly different definitions exist in literature.

$$\sigma = \left( \frac{1}{N-1} \sum_{i=1}^N (x_i - \bar{x})^2 \right)^{1/2}$$

and

$$\sigma = \left( \frac{1}{N} \sum_{i=1}^N (x_i - \bar{x})^2 \right)^{1/2}$$

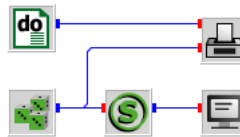
where  $\bar{x}$  denotes the average

$$\bar{x} = \frac{1}{N} \sum_{i=1}^N x_i$$

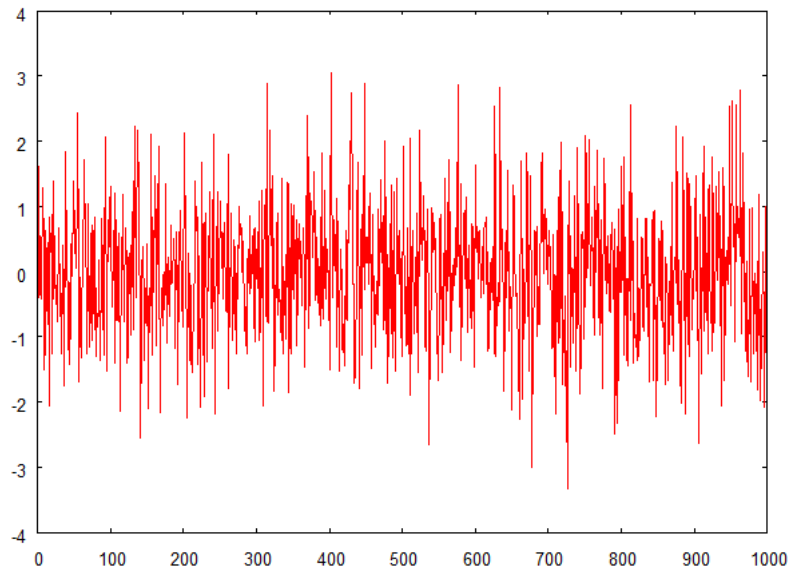
and  $N$  the number of elements in the sample.

The first equation is used by the [STDEV](#) block.

[stdev.vseit](#)



A [DO](#) block provides 1000 clicks, so that the [GASDEV](#) block generates 1000 normally distributed random numbers which are displayed by a [PLOT](#) block.



As expected, the standard deviation turns out to be close to one, as displayed by the [SCREEN](#) block.

0.10018E+01

See also Blocks [STDEVC](#) and [STDEVP](#).