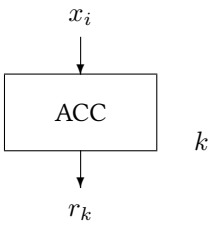
Block ACC

The ACC block calculates the sample autocorrelation coefficient of its inputs at a given lag over a complete simulation run.





Name	ACC
Function	fb0052
Inputs	1
Outputs	1
Parameters	0 . . . [1]
Strings	0
Group	I

Inputs

1 Any signal x_i

Outputs

1 Autocorrelation coefficient r_k over all x_i

Parameters

1 Lag k (default $k = 1$)

Strings

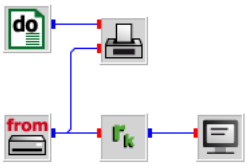
None

Description

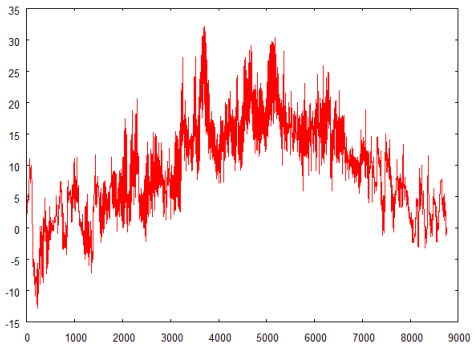
The auto-correlation coefficient r_k of a time series $\{x_i\}$ with lag k is given by

$$r_k = \frac{\sum_{i=1}^{N-k}(x_i - \bar{x})(x_{i+k} - \bar{x})}{\sum_{i=1}^{N}(x_i - \bar{x})^2}$$

acc.vseit



The hourly ambient temperature profile saved in `meteo82.dat` in the `examples/data` directory is read by a READ block for a complete year as defined through the DO block. A PLOT block is used to display the complete time series.



The ACC block calculates the auto-correlation coefficient for lag one, i. e., one hour. The annual value (0.994309 in this case) is displayed by the connected SCREEN block.