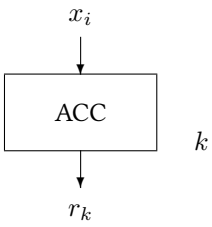
## Block ACC

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

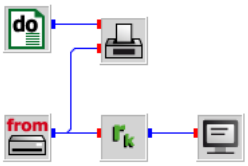
None

### Description

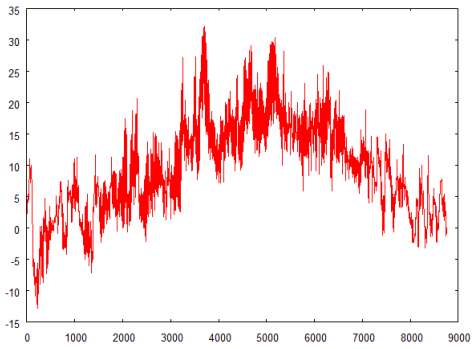
The auto-correlation coefficient $r_k$ of a time series $\{x_i\}$ with lag $k$ is given by

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

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.