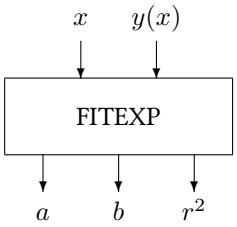
Block FITEXP

The FITEXP block approximates the input data by an exponential function.





Name	FITEXP
Function	fb0034
Inputs	2
Outputs	3
Parameters	0
Strings	0
Group	I

Inputs

1 Any value x
2 Corresponding $y(x)$ value

Outputs

1 Fit coefficient a
2 Fit coefficient b
3 Regression coefficient r^2

Parameters

None

Strings

None

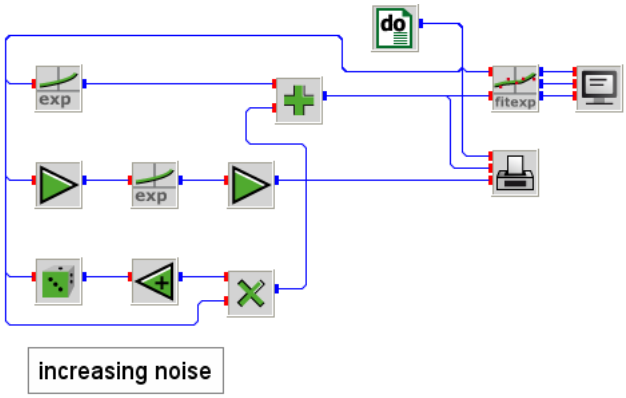
Description

The blocks input data are approximated by the exponential function

$$y = a \exp(bx)$$

The successors of this block are executed only at the end of the simulation run.

fitexp.vseit



A DO block runs x values from 0 to 3 in steps of 0.01. The data are used by an EXP block to calculate $\exp(x)$ to which some noise is generated in the lower part of the block diagram and added to $\exp(x)$. This signal is used by the FITEXP block to find $a = 1$ and $b = 1$, theoretically.

The noise is generated by a RAN1 block with an offset of -0.5 calculated by the OFFSET block. A MUL block multiplies the noise by the output of the DO block to make it increasing in amplitude as x grows.

The outputs a, b, and r^2 are displayed numerically by a SCREEN block.

```
0.99717307      0.99807161      0.99165821
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Assuming that the result is already known ($a = 0.99717307$ and $b = 0.99807161$) the exponential equation $y' = a\exp(bx)$ is calculated and plotted against the input data by a PLOT block.

