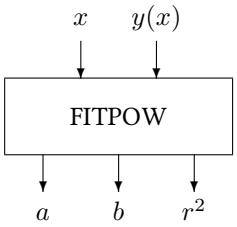
## Block FITPOW

The FITPOW block approximates the input data by a power function.




| | |
|---|---|
| **Name** | FITPOW |
| **Function** | fb0036 |
| **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

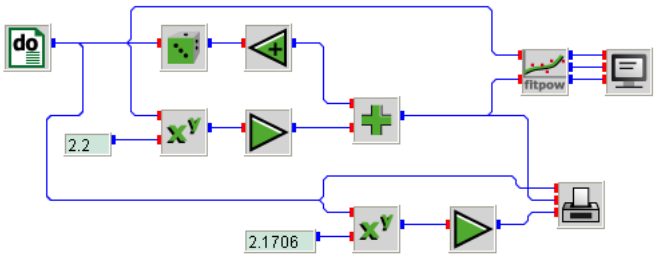
### Description

The blocks input data are approximated by the power function

$$y = ax^b$$

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

fitpow.vseit




A DO block runs $x$ values from 1 to 10 in steps of 0.01. The data are used by an EXPG block with exponent 2.2 as defined by a connected CONST block. The result is multiplied by a factor 0.08 by a GAIN block. Some noise is generated in the upper part of the block diagram and added to $0.08\,x^{2.2}$. This signal is used by the FITPOW block.

The noise is generated by a RAN1 block with an offset of $-0.5$ calculated by the OFFSET block.

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

```
8.29010606E-02   2.1706350      0.88110483
```

Assuming that the result is already known ($a = 0.0829$ and $b = 2.1706$) the logarithmic equation $y' = ax^b$ is calculated and plotted against the input data by a PLOT block.

