Section M4: Arithmetic blocks

These blocks appear at the top of the simulation area

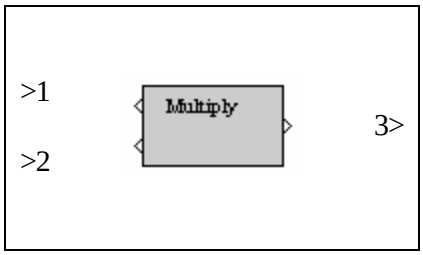
Table of blocks	
Block notation	Description
Mult.	Calculates the product of two signals
log10( )	Calculates the Log base 10 of the input signal
ln( )	Calculates the natural log of the input signal
exp( )	Calculates the exponential of the input signal
10^( )	Calculates the 10th power of the input signal
Square	Calculates the sum of squares of the two input signals

M4.1

Block name : Multiplier **Notation**: ***Mult***

Description: Multiplies the two signals at its inputs.

Pin assignment:



Pin	Description
1	Input signal $x_1(n)$
2	Input signal $x_2(n)$
3	Output signal $y(n)$
4	
5	
6	

Dialog window(s):

-None-

Script use:

Name: multiply
Example code: <param name = "3" value = "B3-multiply(3,1)">

Equation(s) Implemented :

$$y(n) = x_1(n) \cdot x_2(n)$$

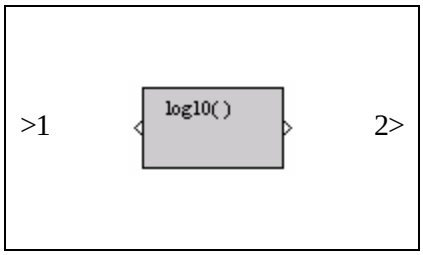
$x_1(n)$ = input signal at pin 1
$x_2(n)$ = input signal at pin 2
$y(n)$ = output signal

M4.2

Block name : Logarithm base 10 **Notation**: ***Log10()***

Description: This block calculates the common (base 10) logarithm of the input signal.

Pin assignment:



Pin	Description
1	Input signal *x(n)*
2	Output signal *y(n)*
3	
4	
5	
6	

Dialog window(s):

-None-

Script use:

Name: log10
Example code: <param name = "3" value = "B3-log10(3,1)">

Equation(s) Implemented :

$$y(n) = \log_{10}(|x(n)|)$$

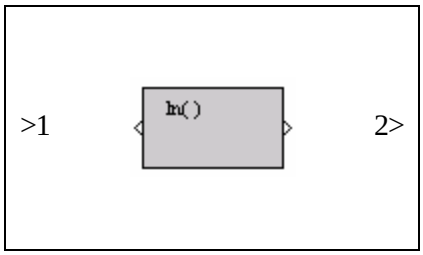
x(n) = input signal
y(n) = output signal

M4.3

Block name : Natural logarithm (base e) **Notation**: ***ln()***

Description: This block calculates the natural (base e) logarithm of the input signal.

Pin assignment:



Pin	Description
1	Input signal *x(n)*
2	Output signal *y(n)*
3	
4	
5	
6	

Dialog window(s):

-None-

Script use:

Name: ln

Example code: <param name = "3" value = "B3-ln(3,1)">

Equation(s) Implemented :

$$y(n) = \log_e(|x(n)|)$$

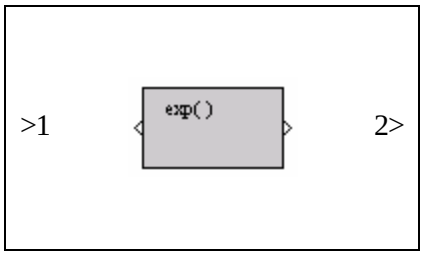
x(n) = input signal
y(n) = output signal

M4.4

Block name : Exponential **Notation**: ***exp()***

Description: This block calculates the exponential of the input signal.

Pin assignment:



Pin	Description
1	Input signal *x(n)*
2	Output signal *y(n)*
3	
4	
5	
6	

Dialog window(s):

-None-

Script use:

Name: exp

Example code: <param name = "3" value = "B3-exp(3,1)">

Equation(s) Implemented :

$$y(n) = e^{x(n)}$$

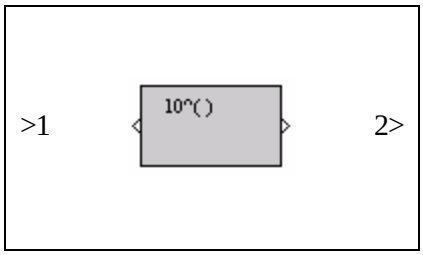
x(n) = input signal
y(n) = output signal

M4.5

Block name : Power 10 **Notation**: ***10^()***

Description: This block calculates the power 10 of the input signal

Pin assignment:



Pin	Description
1	Input signal
2	Output signal
3	
4	
5	
6	

Dialog window(s):

-None-

Script use:

Name: 10pow
Example code: <param name = "3" value = "B3-10pow(3,1)">

Equation(s) Implemented :

$$y(n) = 10^{x(n)}$$

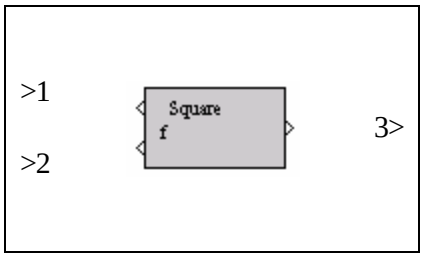
x(n) = input signal
y(n) = output signal

M4.6

Block name : Sum of squares **Notation**: ***Square***

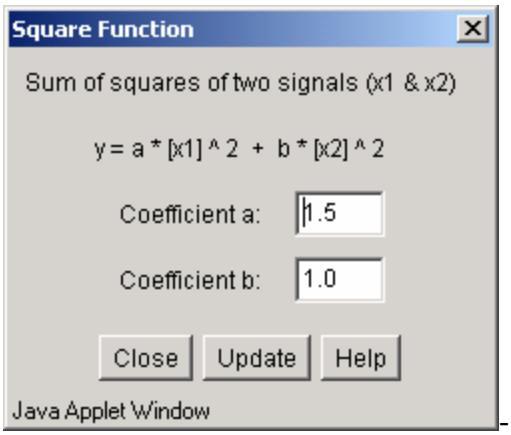
Description: This block calculates the sum of squares of the two signals at its inputs. The coefficients 'a' and 'b', are user-defined.

Pin assignment:



Pin	Description
1	Input signal $x_1(n)$
2	Input signal $x_2(n)$
3	Output signal $y(n)$
4	
5	
6	

Dialog window(s):



(a)Square dialog window

Script use:

Name: square

Example code: <param name = "3" value = "B3-square(3,1)">

Equation(s) Implemented :

$$y(n) = ax_1^{\,2}(n) + bx_2^{\,2}(n)$$

$x_1(n)$ = input signal at pin 1
$x_2(n)$ = input signal at pin 2
$y(n)$ = output signal
a, b are the weights entered by the user