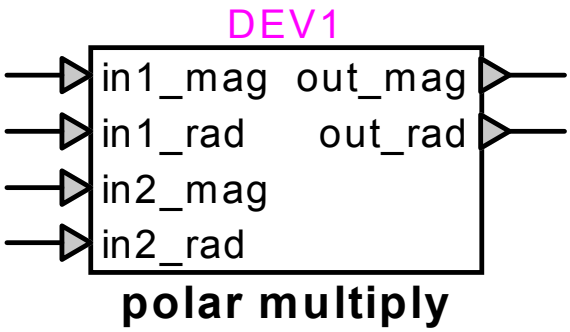
Phasor operation : polar multiply



Phasor operation : polar multiply 1
1 Description 1
1.1 Pins 1
1.2 Parameters 1
1.3 Input 1
1.4 Output 1

1 Description

This device multiplies two vectors or phasors represented by their polar coordinates.

1.1 Pins

This device has six pins:

pin	*type*	*description*	*units*
in1_mag	input pin	input-1 magnitude	any
in1_ rad	input pin	input-1 angle	rad
in2_mag	input pin	input-2 magnitude	any
in2_ rad	input pin	input-2 angle	rad
out_ mag	output pin	output magnitude	units(in1_mag)*units(in2_mag)
out_rad	output pin	output angle	rad

1.2 Parameters

No parameters are required for this device.

1.3 Input

The input pins may be connected to any control signals.

1.4 Output

The outputs are the polar coordinates of the product of the two input vectors.

The operation is immediate, and is calculated as follows:

$$\begin{aligned} out_mag &= in1_mag \cdot in2_mag \\ out_rad &= in1_rad + in2_rad \end{aligned} \qquad (1)$$