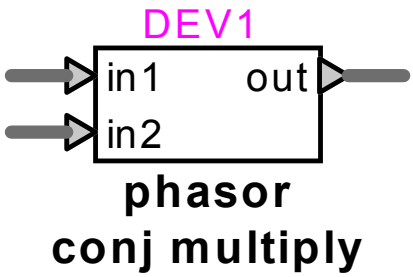
Phasor operation : phasor conjugate multiply



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1 Description

This device multiplies two vectors or phasors represented by 2-signal bundles of their polar coordinates. The first vector is multiplied by the conjugate of the second vector.

1.1 Pins

This device has three pins:

pin	*type*	*description*	*units*
in1	2-signal bundle	input-1 magnitude	any
		input-1 angle	rad
in2	2-signal bundle	input-2 magnitude	any
		input-2 angle	rad
out	2-signal bundle	output magnitude	units(in1_mag)*units(in2_mag)
		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 first input vector by the conjugate of the second vector.

The operation is immediate, and is calculated as follows:

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