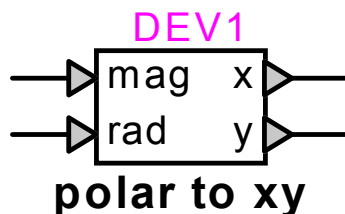


Phasor operation : polar to (x,y)



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1 Description

This device converts a polar (magnitude,angle) representation of a vector or phasor to its (x,y) equivalent.

1.1 Pins

This device has four pins:

<i>pin</i>	<i>type</i>	<i>description</i>	<i>units</i>
mag	input pin	magnitude	any
rad	input pin	angle	rad
x	output pin	x-coordinate	same as mag
y	output pin	y-coordinate	same as mag

1.2 Parameters

No parameters are required for this device.

1.3 Input

The input pins may be connected to any control signals.

The polar coordinates are the magnitude and angle of a vector or phasor in a reference frame.

The phasor magnitude is the peak amplitude, not the RMS value. The phasor angle is expressed in radians.

1.4 Output

The outputs are the x-axis and y-axis projections corresponding to the polar coordinates used as input.

The conversion from polar to (x,y) is immediate, and is calculated as follows:

$$\begin{aligned}x &= \text{magnitude} \cdot \cos(\text{angle}) \\y &= \text{magnitude} \cdot \sin(\text{angle})\end{aligned}\tag{1}$$