

Bpr

%Bpr function

Old name	%BprB													
Function	The function implements a two-position controller. The result is a value of Boolean type.													
Declaration	<pre>BOOL %Bpr(REAL in RV, REAL in IV, REAL in DeadBand, REAL in Hysteresis, BOOL in OO/CO)</pre>													
Parameters	<table><tr><td>RV</td><td>Required value.</td></tr><tr><td>IV</td><td>Input value.</td></tr><tr><td>DeadBand</td><td>Dead band.</td></tr><tr><td>Hysteresis</td><td>Hysteresis.</td></tr><tr><td>OO</td><td>Opening output.</td></tr><tr><td>CO</td><td>Closing output.</td></tr></table>		RV	Required value.	IV	Input value.	DeadBand	Dead band.	Hysteresis	Hysteresis.	OO	Opening output.	CO	Closing output.
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Note	Control is executed according to the left part of the figure (OO/CO = @OO) or according to the right part of the figure (OO/CO = @CO). The diagram illustrates the control logic for the Bpr function. It is divided into two main sections by a vertical dashed line. The left section, labeled 'OO/CO=@OO', shows a horizontal timeline with five states: stat 1, stat 2, stat 3, stat 4, and stat 5. A horizontal line represents the input value (IV). Above this line, a horizontal line represents the required value (RV). A vertical dashed line represents the dead band (AD). The input value (IV) is shown as a step function that transitions from stat 1 to stat 2 at the dead band (AD) and back to stat 1 at the hysteresis (AB). The output (OO/CO) is shown as a step function that transitions from 0 to 1 at the dead band (AD) and back to 0 at the hysteresis (AB). The right section, labeled 'OO/CO=@CO', shows a similar timeline with states 3, 4, and 5. The input value (IV) is shown as a step function that transitions from stat 3 to stat 4 at the dead band (AD) and back to stat 3 at the hysteresis (AB). The output (OO/CO) is shown as a step function that transitions from 0 to 1 at the dead band (AD) and back to 0 at the hysteresis (AB).													
	Parameters: • DeadBand = AC (>0) - real value • Hysteresis = BC (>0) - real value Input variables: • IV (input value) - real value • RV (required value) - real value (constant or continuous signal) Output variables: • OO (opening output) - value of Boolean type • CO (closing output) - value of Boolean type Function: • State1: $IV \leq RV - AD$, then $OO=1$ and $CO=0$ • State2: $RV - AD < IV < RV - AB$, then OO is not changing and $CO=0$ • State3: $RV - AB \leq IV \leq RV + AB$, then $OO=CO=0$ • State4: $RV + AB < IV < RV + AD$, then $OO=0$ and CO is not changing • State5: $RV + AD \leq IV$, then $OO=0$ and $CO=1$													



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