

The ToggleDebounce function block is designed to detect and process debounced toggle edges from a boolean input signal, such as a push button or switch. It ensures that only valid rising edges are acted upon after a defined number of debounce cycles, helping prevent false toggles due to signal bouncing or noise.

#### Inputs

Name	Type	Description
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TRIG	BOOL	The raw trigger signal (e.g., from a button or digital input).
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DEBOUNCE_CYCLES	DINT	Number of PLC cycles the signal must remain stable before toggling.
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#### Outputs

Name	Type	Description
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CURRENT_STATE	BOOL	The current toggled state (toggles on valid rising edge after debounce).
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VALID_EDGE	BOOL	TRUE for one cycle when a valid rising edge is detected and processed.
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#### Internal Variables

Name	Type	Description
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PrevTrig	BOOL	Stores the previous state of the trigger input.
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CycleCounter	DINT	Counts the number of cycles the input has remained unchanged.
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EdgeDetected	BOOL	TRUE if a rising edge is detected (current HIGH, previous LOW).
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