LamaPLC: Simatic S7 SCL commands: Bit logic operations

positive/negative edge monitoring

Of course, there is an R_TRIG / F_TRIG function for edge monitoring, but do you really need to call an FB and an IDB for such a simple function?

Both positive and negative edge monitoring require an additional BOOL-type static, DB, or mark variable (temp is not suitable) in addition to the signal variable. This variable stores the signal state from the previous cycle, which is then compared to the current state. If the old state is FALSE and the current state is TRUE, it indicates a positive edge; if the reverse is true, the old state is TRUE, and the new state is FALSE.

The example below demonstrates the two options, with the variables being FB local “static” variables, but they can also be DB variables or markers. The signal can also be an input.

edge_monitor

```
// signal, old_signal is type BOOL

IF #signal AND NOT (#old_signal) THEN
    // positive flash block program
    //
    ;
END_IF;

IF NOT(#signal) AND #old_signal THEN
    // negative flash block program
    //
    ;
END_IF;

// update the storage BOOL
#old_signal := #signal;
```

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R_TRIG

Detect positive signal edge, if the state changes from FALSE to TRUE at CLK. I have described above a similar but much simpler procedure for edge monitoring: positive/negative edge monitoring.

_FB_ **R_TRIG** (CLK := signal monitoring (BOOL), Q ⇒ result (BOOL);

parameter name	parameter type	function
CLK	input	Incoming signal
Q	output	Result of edge evaluation

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F_TRIG

Detect a negative signal edge if the state transitions from TRUE to FALSE at the CLK. I have described above a similar but much simpler procedure for edge monitoring: positive/negative edge monitoring.

_FB_ **F_TRIG** (CLK := signal monitoring (BOOL), Q ⇒ result (BOOL);

parameter name	parameter type	function
CLK	input	Incoming signal
Q	output	Result of edge evaluation

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Automation! - S7 index

URL_name	Name	Description	Readiness status
automation:s7_var	Simatic Variables/Types	Variables, types, addressing, pointer	90 %
automation:s7_hw	Simatic HW basic / PLC Types	HW config, SW structure	2 %
automation:s7_modbus	Simatic and Modbus	Simatic S7 and Modbus communication	1 %
automation:s7_scl_commands	Simatic Functions	Standard and system functions	70 %
automation:s7_com	Simatic Communication	Communication	0 %
automation:s7_opc	Simatic OPC UA	Using and operating OPC UA	0 %
automation:s7_ard	Simatic & Arduino	Simatic & Arduino	1 %
automation:s7_iot	Simatic IoT	Simatic & Internet of Things	0 %

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Simatic, SCL, F TRIG, R TRIG, bit operation, flanke, trigger, TIA