PLC & Ladder Logic
Micrologix 1000

ECEN 4856

MicroLogix 1000 Programmable Controllers User Manual

On/Off Circuit Application Example

The following application example illustrates how to use an input to toggle an output either on or off. For a detailed explanation of:

- XIC, XIO, OTE, OTU, OTL, and OSR instructions, see chapter 6.
- JMP and LBL instructions, see chapter 10.

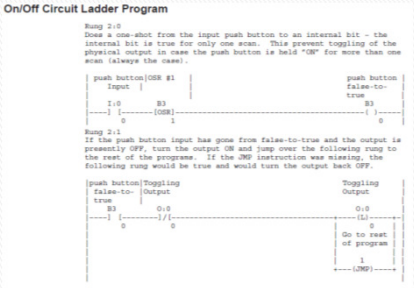
If the output is off when the input is energized, the output is turned on. If the output is on when the input is energized, the output is turned off.

The User Manual is located on my Website:

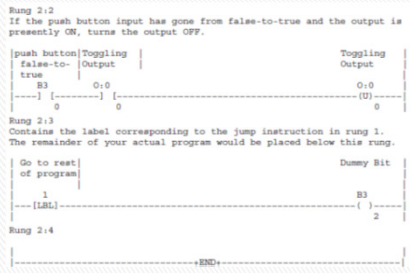
See pages E34 – E35 for a "Toggle" example in RSLogix

Did you do Part 1? ›

On/Off Circuit Ladder Program

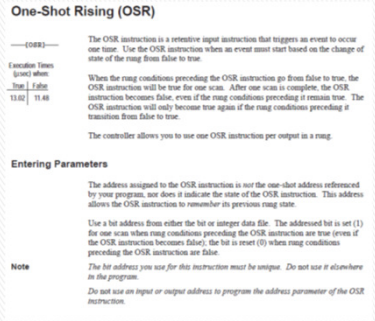


On/Off Example ›



On/Off Example ›

One-Shot Rising (OSR)



The OSR instruction is a retentive input instruction that triggers an event to occur one time. Use the OSR instruction when an event must start based on the change of state of the rung from false to true.

When the rung conditions preceding the OSR instruction go from false to true, the OSR instruction will be true for one scan. After one scan is complete, the OSR instruction becomes false, even if the rung conditions preceding it remain true. The OSR instruction will only become true again if the rung conditions preceding it transition from false to true.

The controller allows you to use one OSR instruction per output in a rung.

Entering Parameters

The address assigned to the OSR instruction is *not* the one-shot address referenced by your program, nor does it indicate the state of the OSR instruction. This address allows the OSR instruction to *remember* its previous rung state.

Use a bit address from either the bit or integer data file. The addressed bit is set (1) for one scan when rung conditions preceding the OSR instruction are true (even if the OSR instruction becomes false); the bit is reset (0) when rung conditions preceding the OSR instruction are false.

Note *The bit address you use for this instruction must be unique. Do not use it elsewhere in the program.*

Do not use an input or output address to program the address parameter of the OSR instruction.

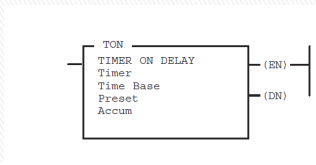
A One-Shot ›

Sinking and Sourcing Circuits

Any of the MicroLogix 1000 DC inputs can be configured as sinking or sourcing depending on how the DC COM is wired on the MicroLogix.

Type	Definition
Sinking Input	The input energizes when high-level voltage is applied to the input terminal (active high). Connect the power supply VDC (–) to the MicroLogix DC COM terminal.
Sourcing Input	The input energizes when low-level voltage is applied to the input terminal (active low). Connect the power supply VDC (+) to the MicroLogix DC COM terminal.

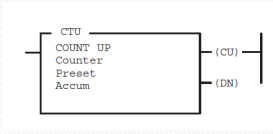
I/O Connectios ›



Using Status Bits

This Bit	Is Set When	And Remains Set Until One of the Following
Timer Done Bit DN (bit 13)	accumulated value is equal to or greater than the preset value	rung conditions go false
Timer Enable Bit EN (bit 14)	rung conditions are true	rung conditions go false
Timer Timing Bit TT (bit 15)	rung conditions are true and the accumulated value is less than the preset value	rung conditions go false or when the done bit is set

Time ON Delay ›



Using Status Bits

This Bit	Is Set When	And Remains Set Until One of the Following
Count Up Overflow Bit OV (bit 12)	accumulated value wraps around to –32,768 (from +32,767) and continues counting up from there	a RES instruction having the same address as the CTU instruction is executed OR the count is decremented less than or equal to +32,767 with a CTD instruction
Done Bit DN (bit 13)	accumulated value is equal to or greater than the preset value	the accumulated value becomes less than the preset
Count Up Enable Bit CU (bit 15)	rung conditions are true	rung conditions go false OR a RES instruction having the same address as the CTU instruction is enabled

Count Up Timer ›

References ›