

## **PLC Simulator version 1.00 Final**

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!!Thank you for taking the time to try out PLC Simulator version 1.00 Final!!

A simple PLC (Programmable Logic Controller) cost more than US\$100. Hence it is impossible for individual to buy one for training purposes. PLC simulator is designed to overcome this limitation by using the PC processor to process PLC's ladder code. It is distributed free (do send me a postcard) of charge for individual who cannot afford to pay. If you can afford and find this PLC simulator to be useful, you are welcome to pay something like US\$10+ to support my work.

The PLC simulator mimic the 'OMRON Industrial PLC' with the following supported ladder code: LD, OR, AND, CNT, TIM, BLK, DIFU, SFT. It has 16 inputs, 16 outputs, 20000 internal relays, 8 counters and 8 timers.

Possible combination of ladder codes:

LD, LD NOT  
LD TIM, LD NOT TIM  
LD CNT, LD NOT CNT  
OR, OR BLK, OR TIM, OR CNT  
OR NOT, OR NOT BLK, OR NOT TIM, OR NOT CNT  
AND, AND BLK, AND TIM, AND CNT  
AND NOT, AND BLK, AND NOT TIM, AND NOT CNT  
OUT, OUT NOT, DIFU, SFT

The ladder code LD, OR, AND, BLK, CNT and TIM should be self-explainable for PLC-literate individual. The command DIFU (differential up) and SFT (shift) needs some explanation. DIFU is used when you need to get a pulse (i.e. ON for one scan time). As an example:

```
LD 00
OUT 1000
```

Here when input 00 is activated, the output 1000 will be activated as long as input 00 remains activated. Compare it to the following:

```
LD 00
DIFU 1000
```

Here when the input 00 is activated, the output 1000 will be activated for one scan time (i.e. one pulse). Output 1000 will then becomes OFF even though input 00 remains activated.

SFT is used when you need to shift the logic. The SFT needs three input: logic input to shift, the activating signal and the reset. Here is an example:

```
LD    00
DIFU  2000

LD    01           #logic input to shift
LD    2000        #the activating signal
LD    02           #RESET
SFT   1000  1005  #shift from 1000 to 1005
```

NOTE: the user is responsible to make sure that the activating signal consist of only one pulse. If a continuous input is used, the shifting will be done for every PLC cycle.

When shifting occurs, the logic at 1000 will shift to 1001, the logic at 1001 will shift to 1002, the logic at 1002 will shift to 1003, . . . . .  
The logic at location 1000 will depends on the 'logic input to shift'.

The example above shift from left to right. To shift from right to left, reverses the SFT argument (i.e. SFT 1005 1000).

The features of the PLC Simulator,

- \* Ease of ladder code editing.
- \* Near real-time timing and counting capabilities.
- \* User friendly interface.
- \* Ladder code can be saved into files.
- \* Easy to use 'click INPUT'.
- \* LED indicator for both inputs and outputs.

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