Sheikh Hasina University, Netrokona
Department of Computer Science and Engineering
CSE-2205: Introduction to Mechatronics

Lec-28: PLC Simulation

Mechatronics: Electronic Control Systems in Mechanical Engineering by W. Bolton

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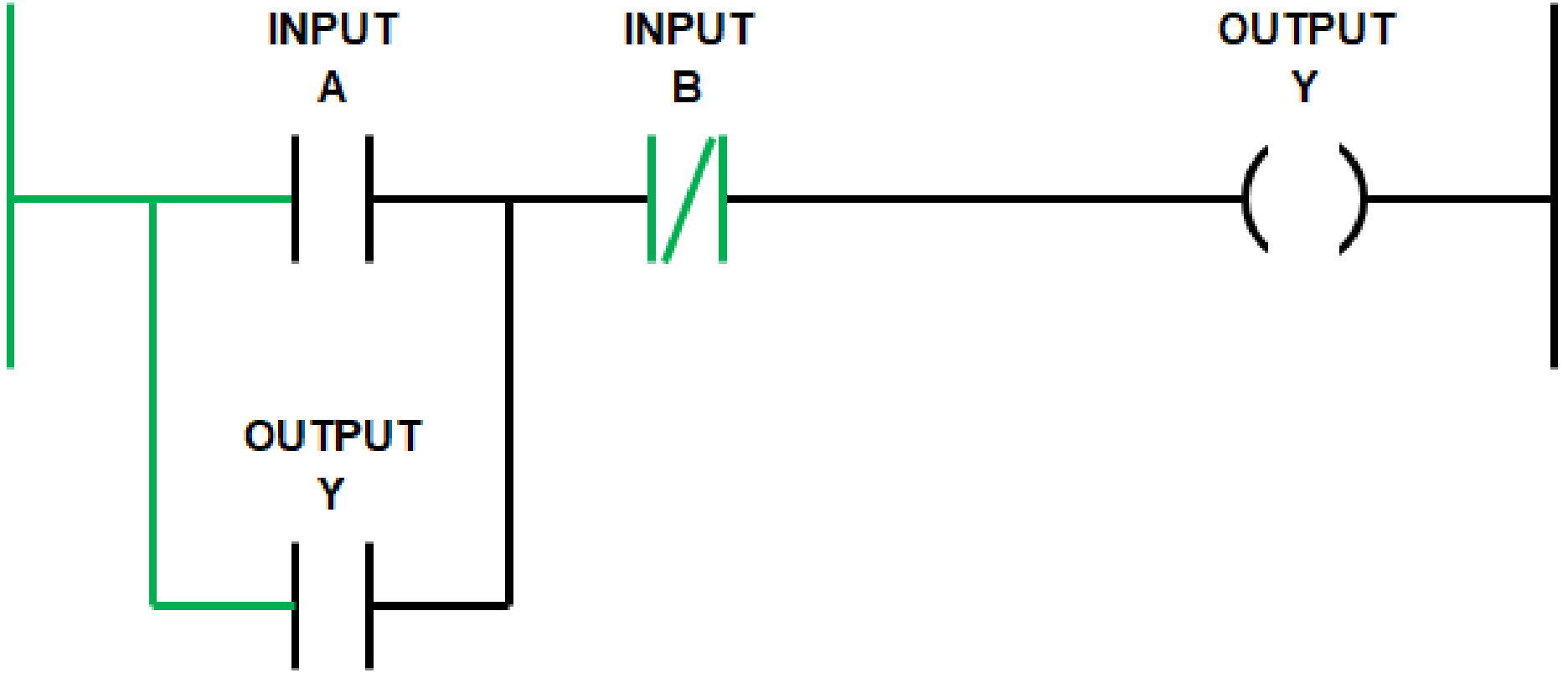
Ladder Logic Latch with Hold In Logic

Input B is a normally closed (NC) contact symbol and Output Y is used twice and branched (or in parallel with Input A).



If Input A goes TRUE and Input B is FALSE then Output Y goes TRUE….

Motor Control Ladder Diagram

First up let's list the required inputs and outputs for our motor control ladder diagram.

PLC manufacturers use different memory address allocation so the input output allocations used here are arbitrary address.

Below is the list of required inputs …..

NAME	ADRESS	TYPE	COMMENT	PLC WIRING
M1 START	I:1.0	BOOL	Motor No.1 Start Push Button	Normally Open
M1 STOP	I:1.1	BOOL	Motor No.1 Stop Push Button	Normally Closed
M1 TOL	I:1.2	BOOL	Motor No.1 Thermal Overload	Normally Closed

Next let’s list the required outputs…..

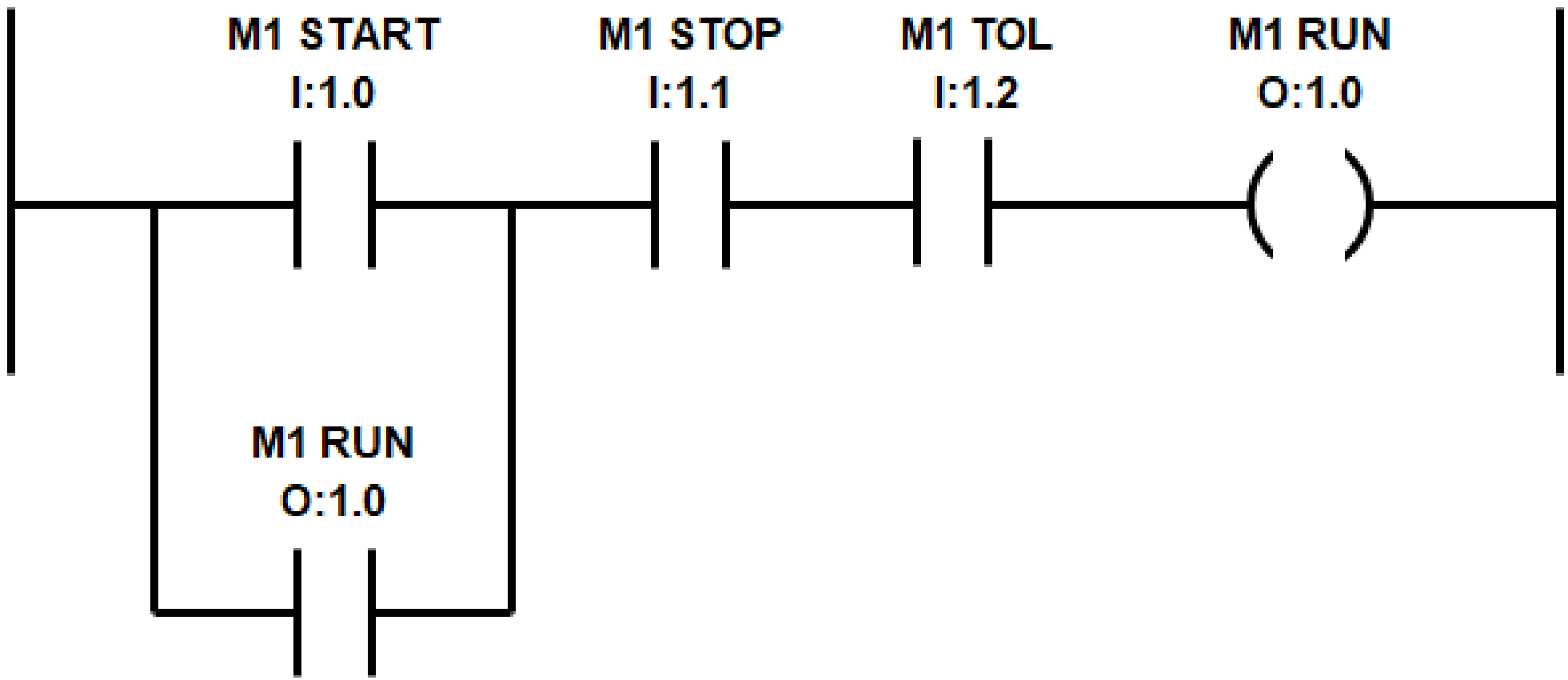
NAME	ADRESS	TYPE	COMMENT	PLC WIRING
M1 RUN	O:1.0	BOOL	Motor No.1 Run	Normally Open

The ladder logic programming example uses the M1 START push button input to activate the M1 RUN output.

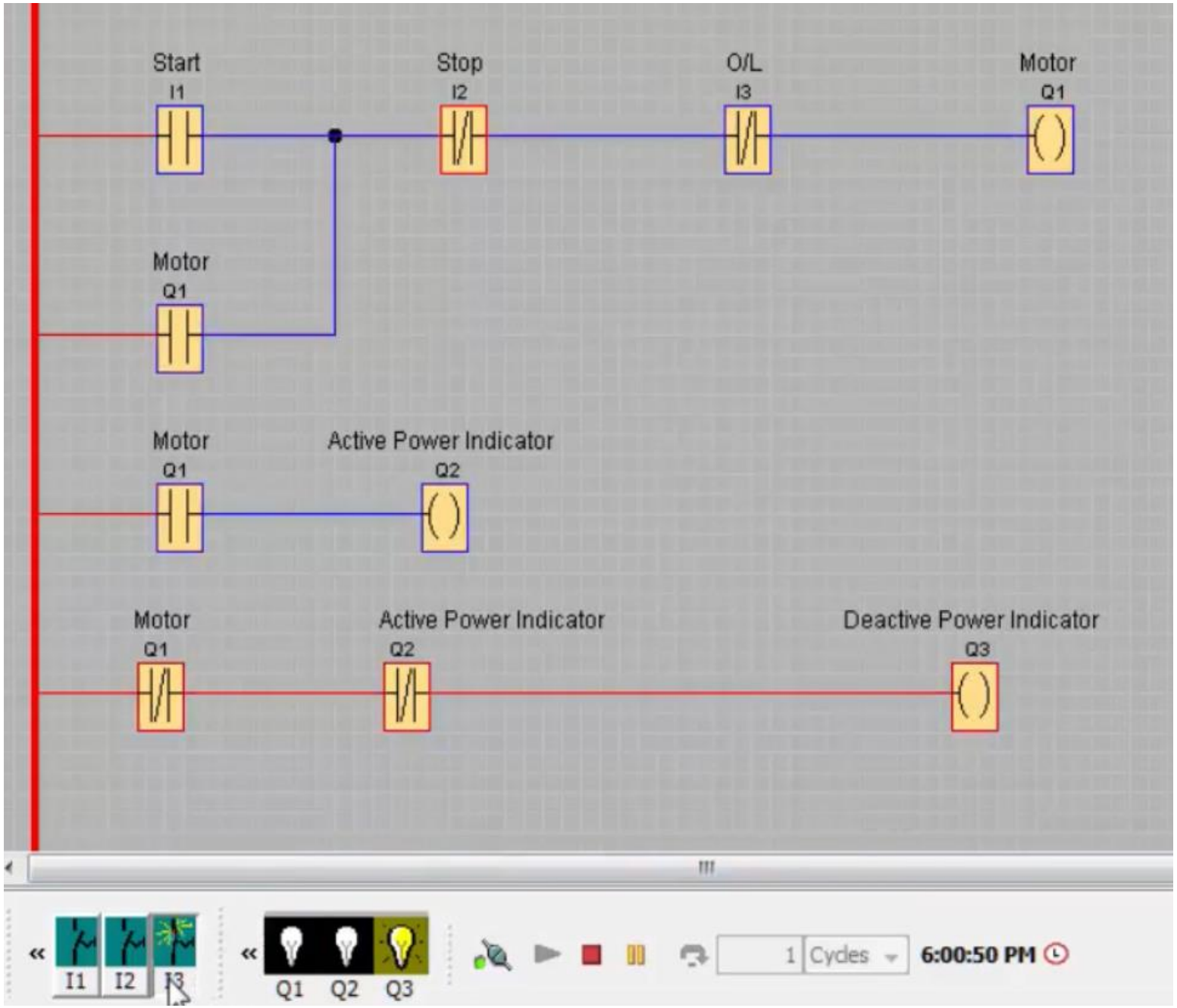
The M1 RUN output is used a second time to latch the M1 RUN output.

Both M1 STOP and M1 TOL are wired normally closed (NC) to the PLC inputs and thus need to be configured as normally open (NO) symbols in the logic.

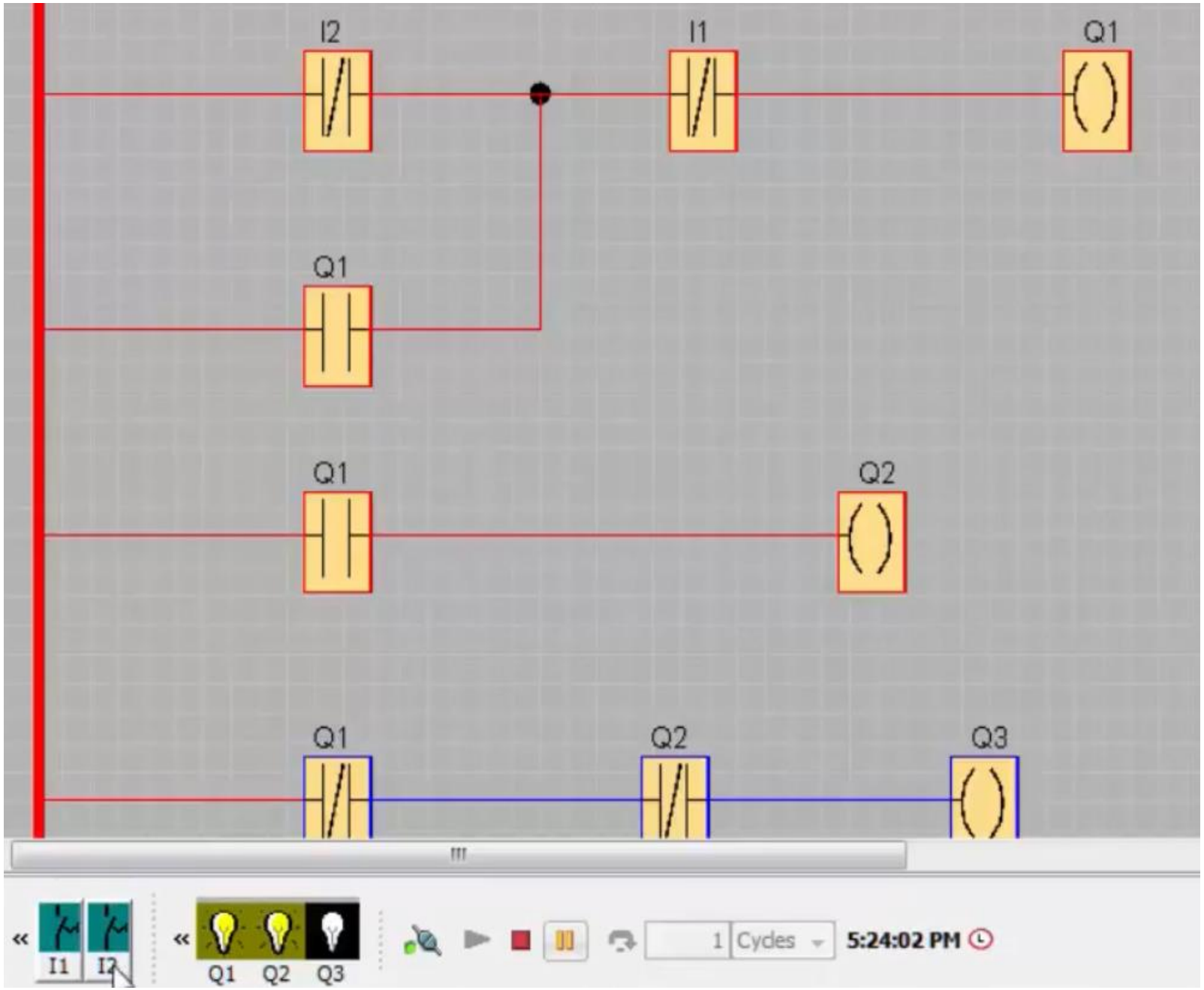
So when either stop is activated the logic flow is broken and the latch is reset….


M1 START
I:1.0
M1 STOP
I:1.1
M1 TOL
I:1.2
M1 RUN
O:1.0
M1 RUN
O:1.0

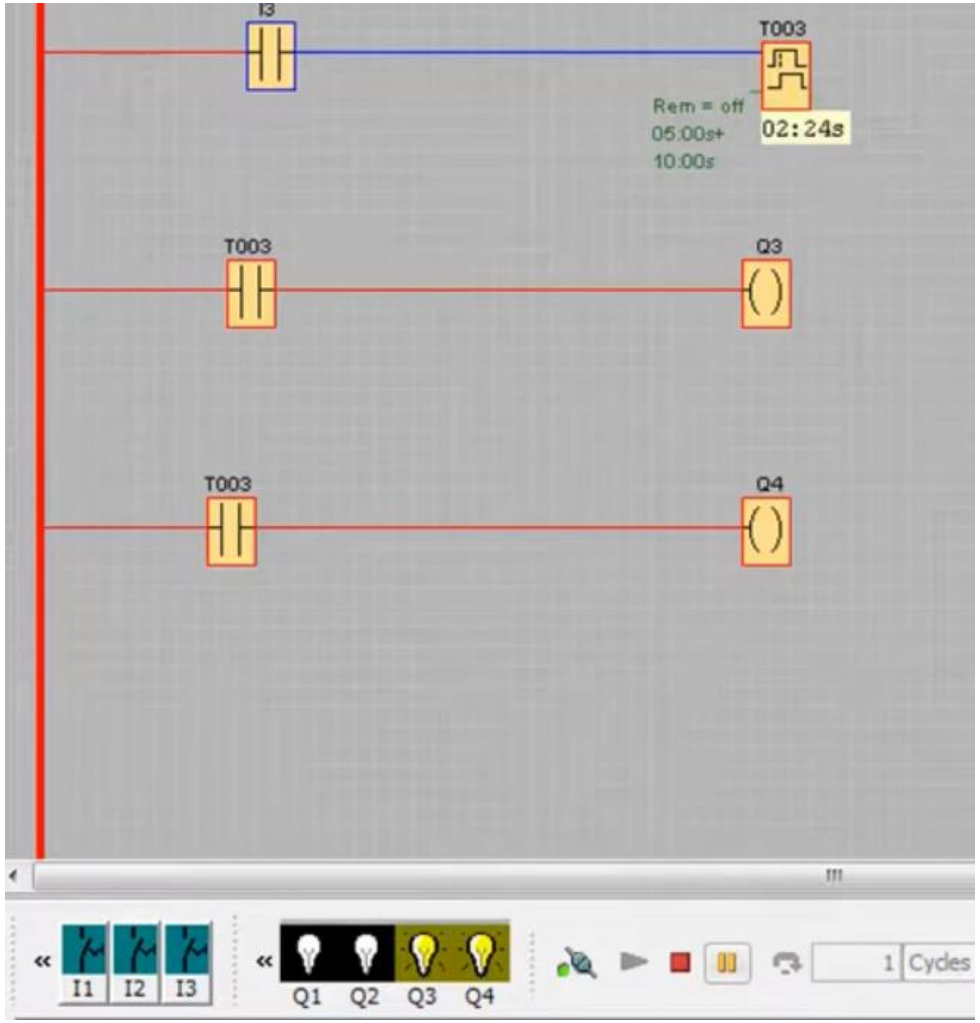
Motor on off with signal lamps

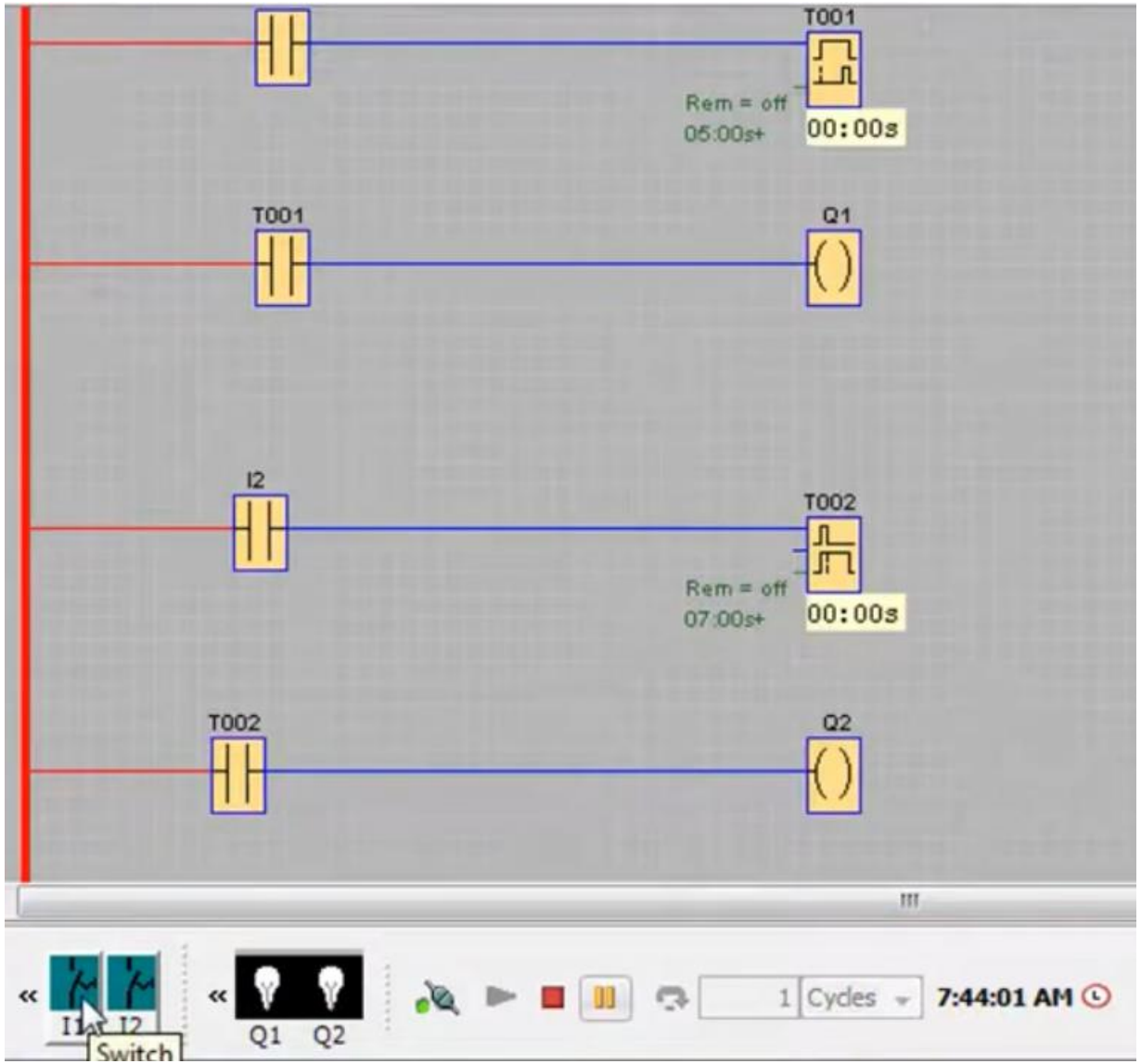


Automatic water pump control using PLC

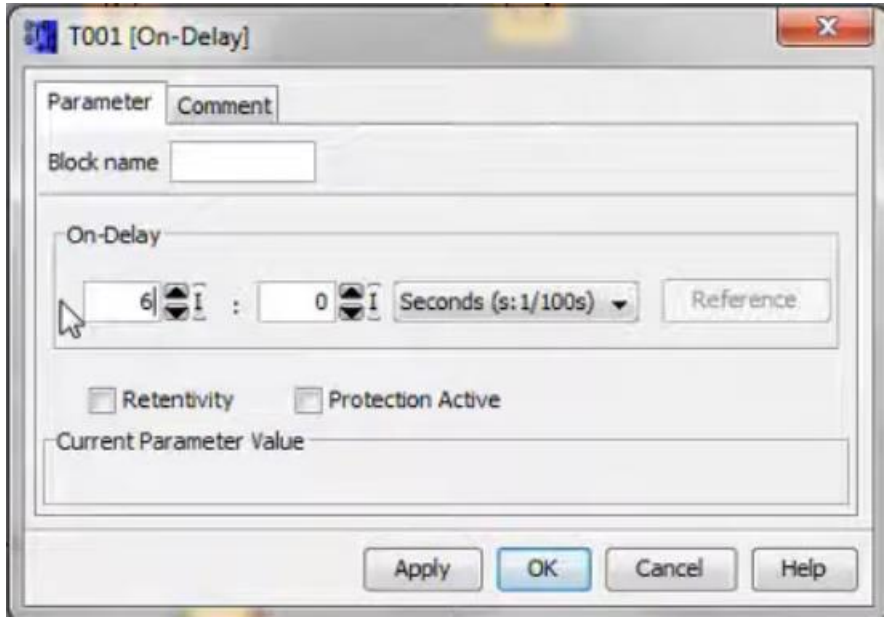


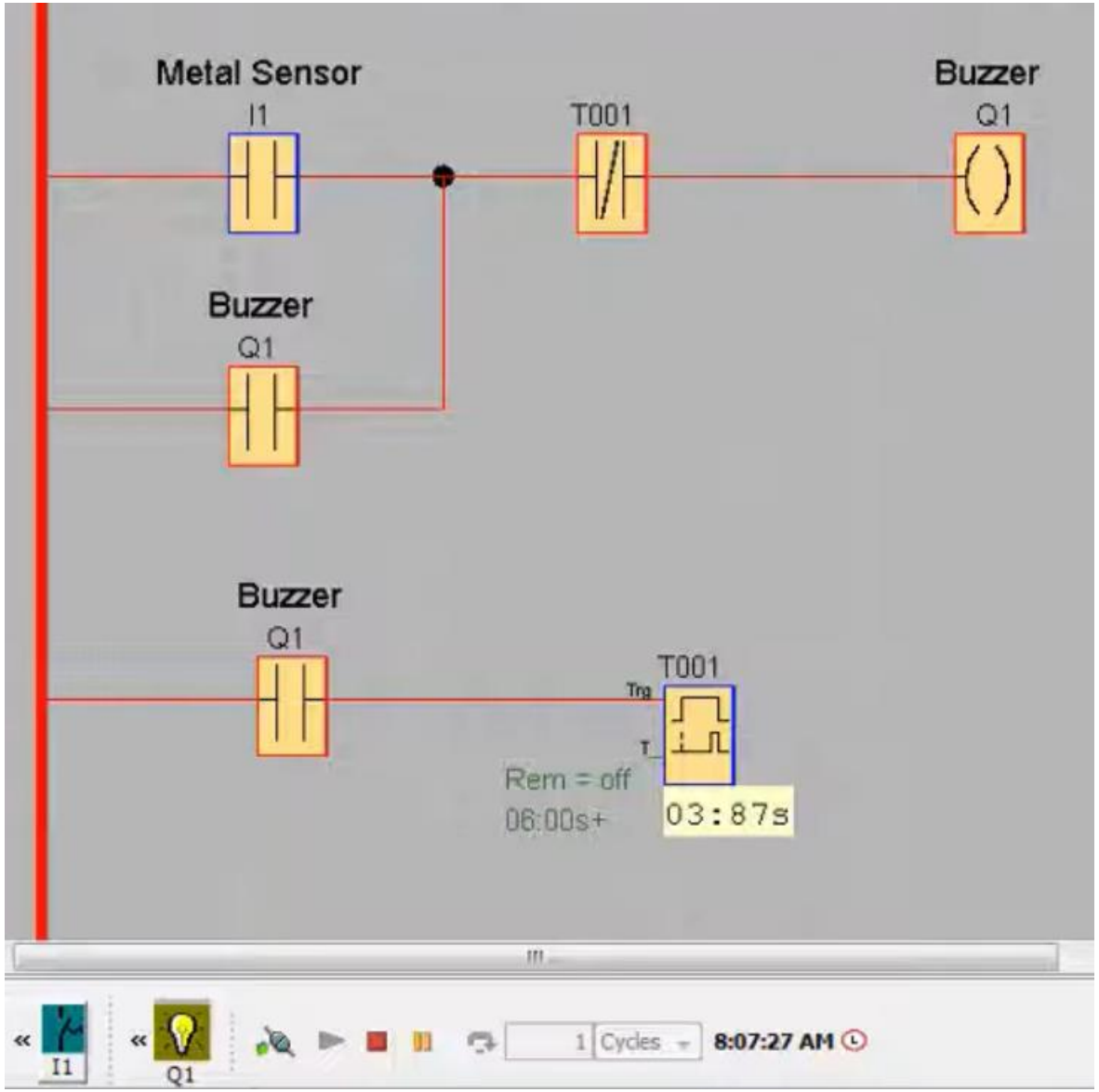
On delay timer- Off delay timer- On Off delay timer for PLC



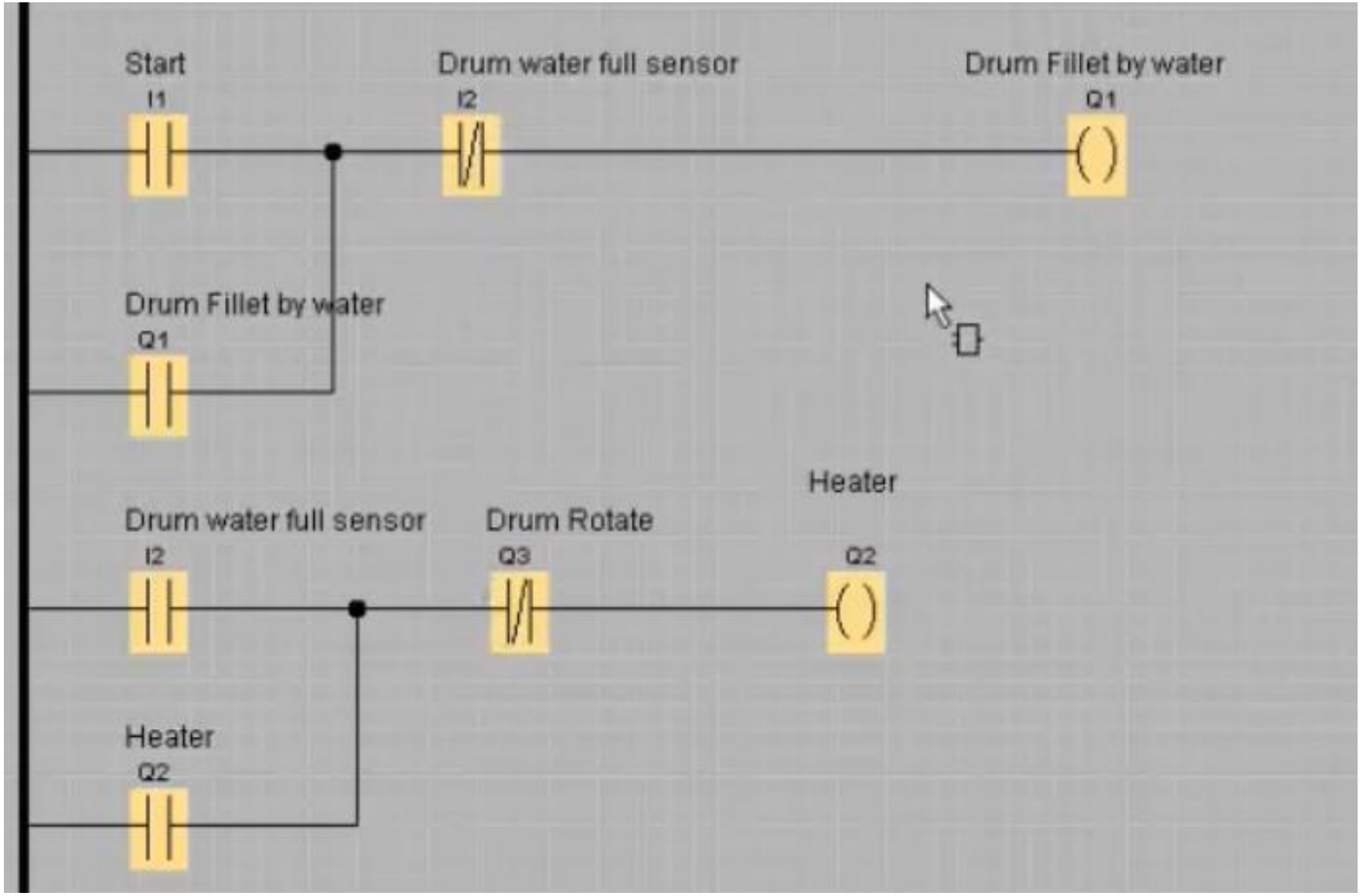


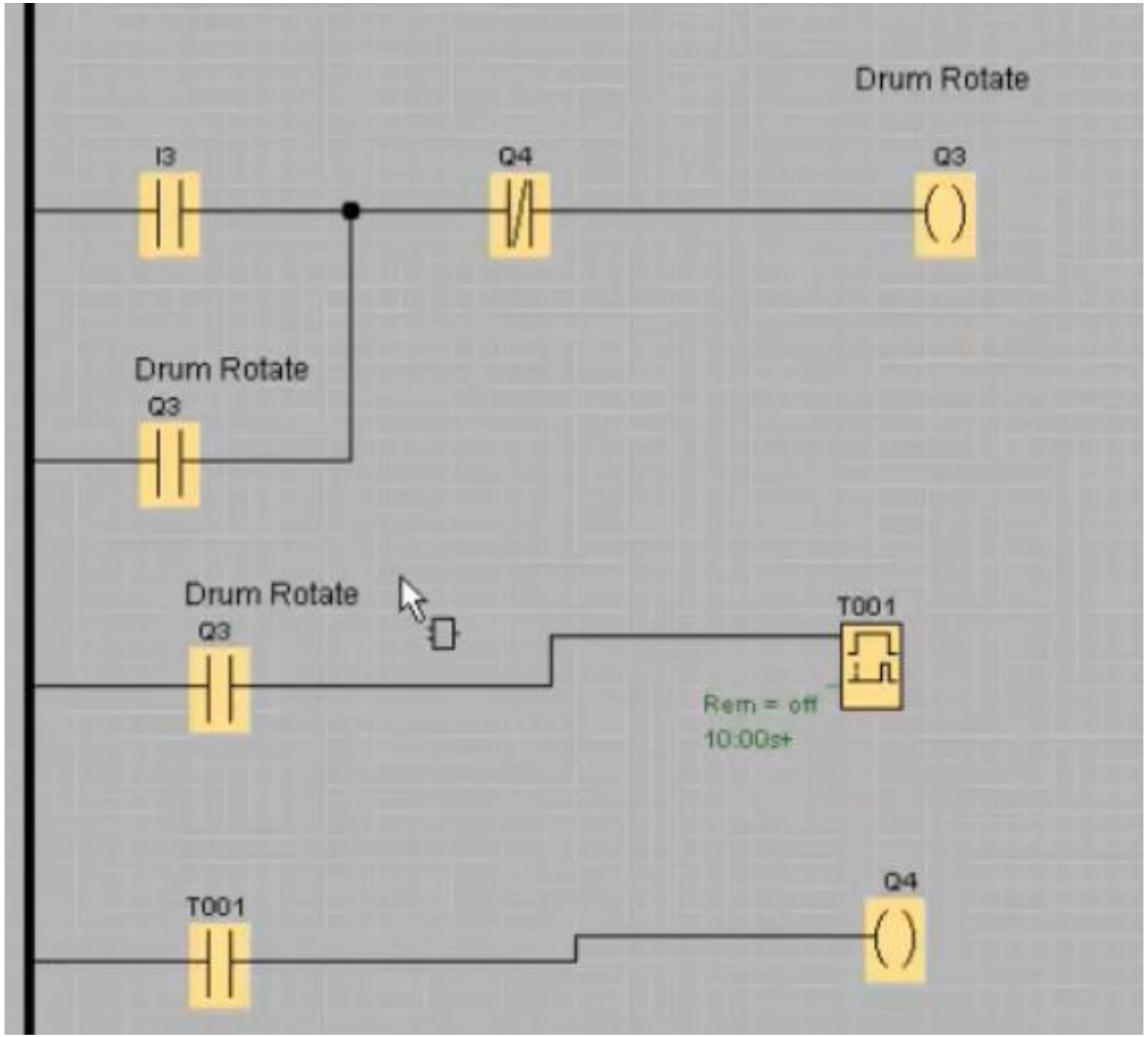
Metal sensor interfacing with PLC





Washing machine control by using PLC




Drum Rotate
I3
Q4
Q3
Drum Rotate
Q3
Drum Rotate
Q3
T001
Rem = off
10.00s+
T001
Q4