

## Lab Objectives

In this lab you will learn how to develop a ladder diagram that will control the operation of a traffic light.

## Lab Duration

45 – 65 minutes

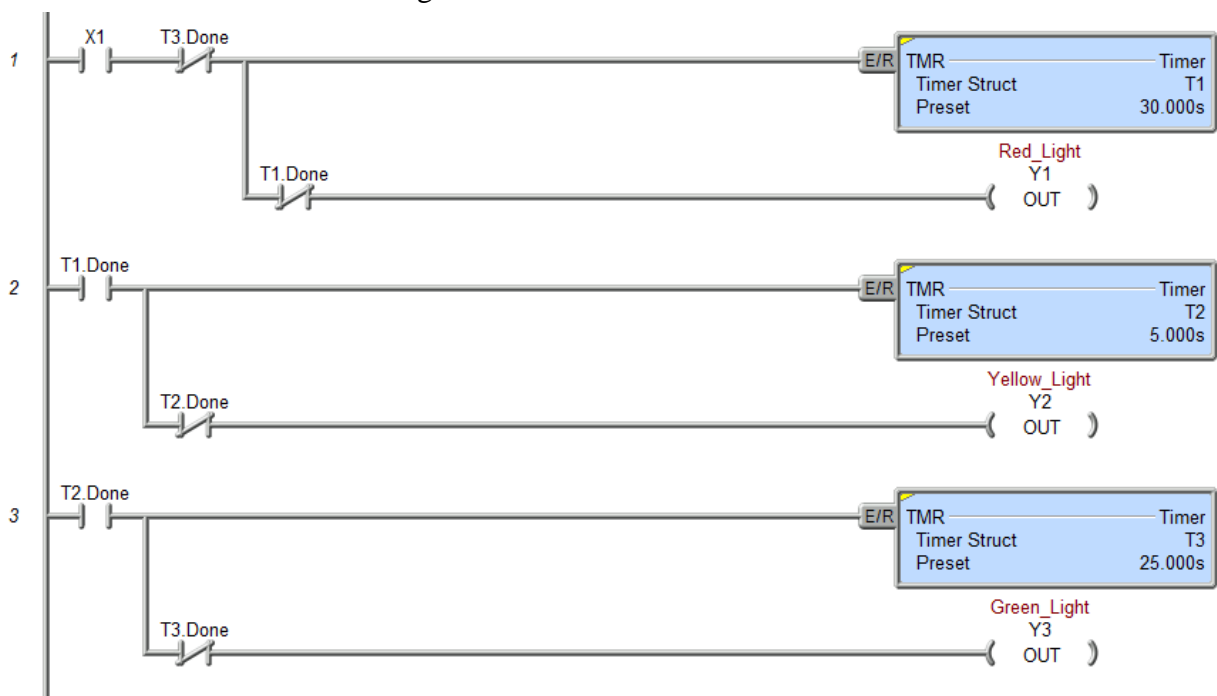
## Lab Scenario

Develop a PLC program to implement a process to control a traffic light as follows:

- Controls the traffic at an intersection of two roads: North-South (NS) & East-West (EW).
- The process is started using a normally open (NO) Start button. It should run continuously afterwards until the start button is open.
- Develop the ladder diagram using timers.
- Lights labels: **Green\_NS**, **Yellow\_NS**, **Red\_NS**, **Green\_EW**, **Yellow\_EW**, and **Red\_EW**.
- Each red light comes on for 30 sec, a yellow for 5 sec, and a green for 25 sec.
- When the process is first started, **Green\_NS and Red\_EW** are on.

## Lab Procedure

1. First we will develop a program for one street and then for a two-way intersection.
2. Build and test the following circuit.



3. Develop a ladder diagram that operates a two-way intersection as explained above. Verify the operation of the program.
4. The same program can be built using four (4) timers instead of six (6). Try building and testing such program.
5. If time permits, develop another program to control the traffic light using only one timer and compare functions.

*Two-Way Traffic Light Program*

