MainRoutine - Ladder Diagram
Experiment_4:MainTask:MainProgram
Total number of rungs in routine: 12

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C:\Program Files (x86)\Rockwell Software\RSLogix 5000\ENU\v17\Bin\Experiment_4.ACD

Rung 0 — NO Start switch latches streetB Red light and street A Green light.

- NO_Switch <Local:5:I.Data.20>
- ONS [ONS]
- StreetB_Red <Local:6:O.Data.23> (L)
- StreetA_Green <Local:6:O.Data.22> (L)

Rung 1 — NO push button pressed 5 times to count the number of vehicles

- NO_PB1 <Local:5:I.Data.16>
- CTU — Count Up, Counter no_vehicles, Preset 5, Accum 0 — (CU) (DN)

Rung 2 — The counter after deteccting 5 vehicles starts the Retentive timer. The Green light on street A is unlatched and Yellow on the same street is latched

- no_vehicles.DN
- Timer.EN
- ons_1 [ONS]
- StreetA_Green <Local:6:O.Data.22> (U)
- StreetA_Yellow <Local:6:O.Data.21> (L)
- RTO — Retentive Timer On, Timer Timer, Preset 38000, Accum 0 — (EN) (DN)

Rung 3 — After 3 Seconds the street A yellow light is unlatched and red light is latched and green on street A is unlatched because it stays latched in the last 25 seconds of the sequence.

- CMP — Compare, Expression Timer.ACC=3000
- ons2 [ONS]
- StreetA_Yellow <Local:6:O.Data.21> (U)
- StreetA_Red <Local:6:O.Data.20> (L)
- StreetA_Green <Local:6:O.Data.22> (U)

Rung 4 — Afer 1 second delay Street B Green light is latched and Street B red light in unlatched

- CMP — Compare, Expression Timer.ACC=4000
- ons3 [ONS]
- StreetB_Green <Local:6:O.Data.25> (L)
- StreetB_Red <Local:6:O.Data.23> (U)

After 5 seconds delay, Street B Green light is unlatched and Street B Yellow light is latched

5
```
        CMP                         ons4        StreetB_Green
   Compare                         [ ONS ]      <Local:6:O.Data.25>
   Expression  Timer.ACC=9000                        (U)

                                                 StreetB_Yellow
                                                 <Local:6:O.Data.24>
                                                     (L)
```

After 3 seconds delay, Street B red light is latched and street B yellow is Unlatched

6
```
        CMP                         ons5        StreetB_Red
   Compare                         [ ONS ]      <Local:6:O.Data.23>
   Expression  Timer.ACC=12000                      (L)

                                                 StreetB_Yellow
                                                 <Local:6:O.Data.24>
                                                     (U)
```

After 1 second delay, Street A green light is latched and street red light is unlatched

7
```
        CMP                         ons_6       StreetA_Green
   Compare                         [ ONS ]      <Local:6:O.Data.22>
   Expression  Timer.ACC=13000                      (L)

                                                 StreetA_Red
                                                 <Local:6:O.Data.20>
                                                     (U)
```

As soon as 13 Seconds are over the counter is resetted. To detect 5 more vehicles and start the sequence again

8
```
        CMP                         ons7        no_vehicles
   Compare                         [ ONS ]        (RES)
   Expression  Timer.ACC=13000
```

A limit switch keeps the Street A green light and Street B Red light Latched and street A red light is unlatched, even if the counter detects 5 vehicle the sequence won't start till 25 seconds are over

9
```
        LIM                         ons8        StreetA_Green
   Limit Test (CIRC)               [ ONS ]      <Local:6:O.Data.22>
   Low Limit        13000                           (L)

   Test        Timer.ACC                        StreetB_Red
                      0                          <Local:6:O.Data.23>
   High Limit       38000                            (L)

                                                 StreetA_Red
                                                 <Local:6:O.Data.20>
                                                     (U)
```

After 38 seconds the time resets

10
```
        CMP                                     Timer
   Compare                                        (RES)
   Expression  Timer.ACC=38000
```

When the NO switch is turned off, everything resets

11

NO_Switch
<Local:5:I.Data.20>
─] / [─

StreetA_Green
<Local:6:O.Data.22>
(U)

StreetA_Red
<Local:6:O.Data.20>
(U)

StreetA_Yellow
<Local:6:O.Data.21>
(U)

StreetB_Green
<Local:6:O.Data.25>
(U)

StreetB_Red
<Local:6:O.Data.23>
(U)

StreetB_Yellow
<Local:6:O.Data.24>
(U)

Timer
(RES)

(End)