ELEVATOR TEMPLATE AND SIMULATOR SETUP

Setting up the Template file

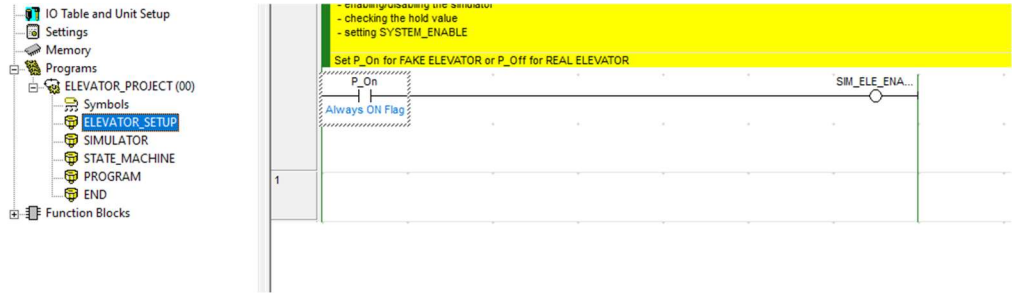
1. Download ELEVATOR.zip from LEARN
2. Extract the files from the zip file to a directory on your home network drive (somewhere on P:/ drive)
3. Rename ELEVATOR_PROGRAM.cxp to something unique for your group e.g. ElevatorGroup12.cxp
4. Open the .cxp program by double clicking on it

Setting up the Simulator

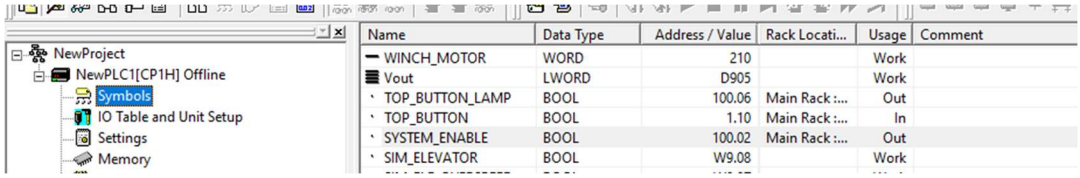
Key points:

- Set **SYSTEM_ENABLE** to get the physical elevator working
- Set **SIM_ELE_ENABLE** ON to enable the simulator, and OFF when using the physical elevator.

1. Open the ELEVATOR_SETUP section



2. The **SYSTEM_ENABLE** bit must be set to **ON** (i.e. using a **P_On** contact) while using the physical elevator models, or the elevators will do **NOTHING.**
3. The **SYSTEM_ENABLE** bit can be found in the global symbol table:



   - NOTE – click the Name column heading to sort by symbol name, clicking multiple times switches between ascending and descending order.
4. IF YOU DON'T SET SYSTEM_ENABLE NOTHING WILL MOVE ON THE PHYSICAL ELEVATOR MODEL.
5. If using the physical elevator models: **SIM_ELE_ENABLE** must be set to **OFF** (i.e. using a **P_Off** contact.)
6. While using the elevator simulator: **SIM_ELE_ENABLE** must be set to **ON** (i.e. using a **P_On** contact.)
7. IF YOU DON'T DO THIS YOUR CODE WILL NOT WORK CORRECTLY WHEN SWITCHING BETWEEN THE SIMULATOR AND PHYSICAL MODEL

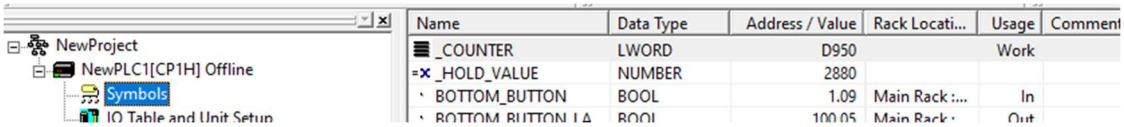
Hold Value and Encoder Value

Key point:

- Use the **_COUNTER** variable as a PRV proxy while using the simulator.

1. Set the hold value by changing the number set in **_HOLD_VALUE**, found in the global symbol table

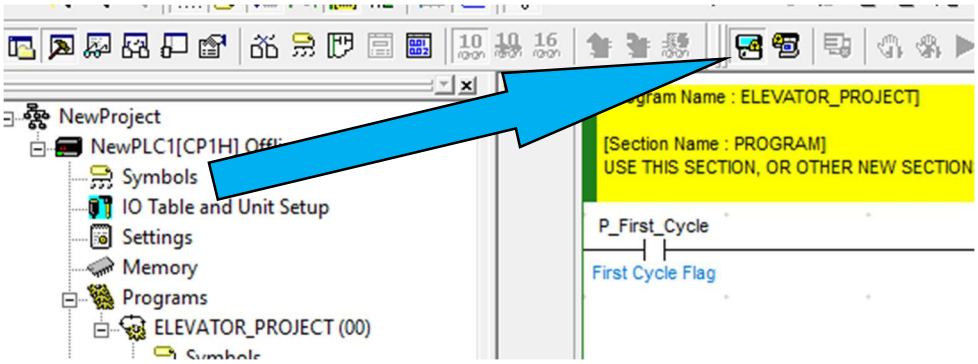
2. The encoder value is read using **_COUNTER**, also in the global symbol table.



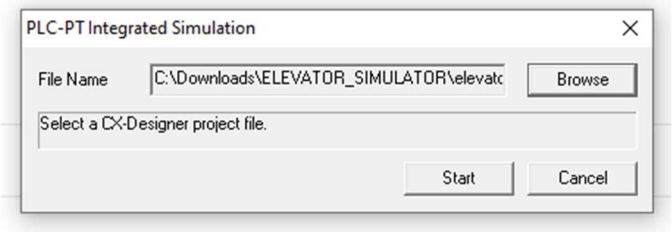
3. The encoder value (**_COUNTER**) is the position of the elevator carriage.
4. It will be set in two places:
    a. by the elevator simulation, which is already set up and controlled using **SIM_ELE_ENABLE**
    b. you will also set it using a **PRV** instruction for High Speed Counter 0
5. NOTE – PRV and other hardware instructions only run while running on a PLC, not in the simulation environment.

Using the PLC integrated simulator

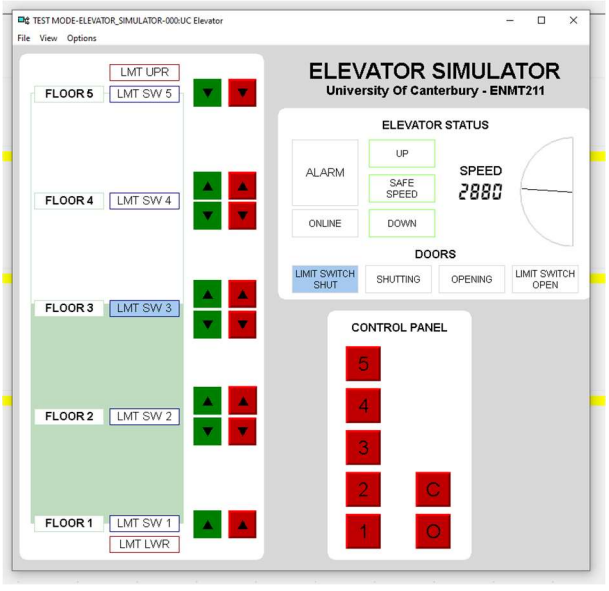
6. Once your template has been set up, open the simulator using the Start PLC-PT Integrated Simulator button

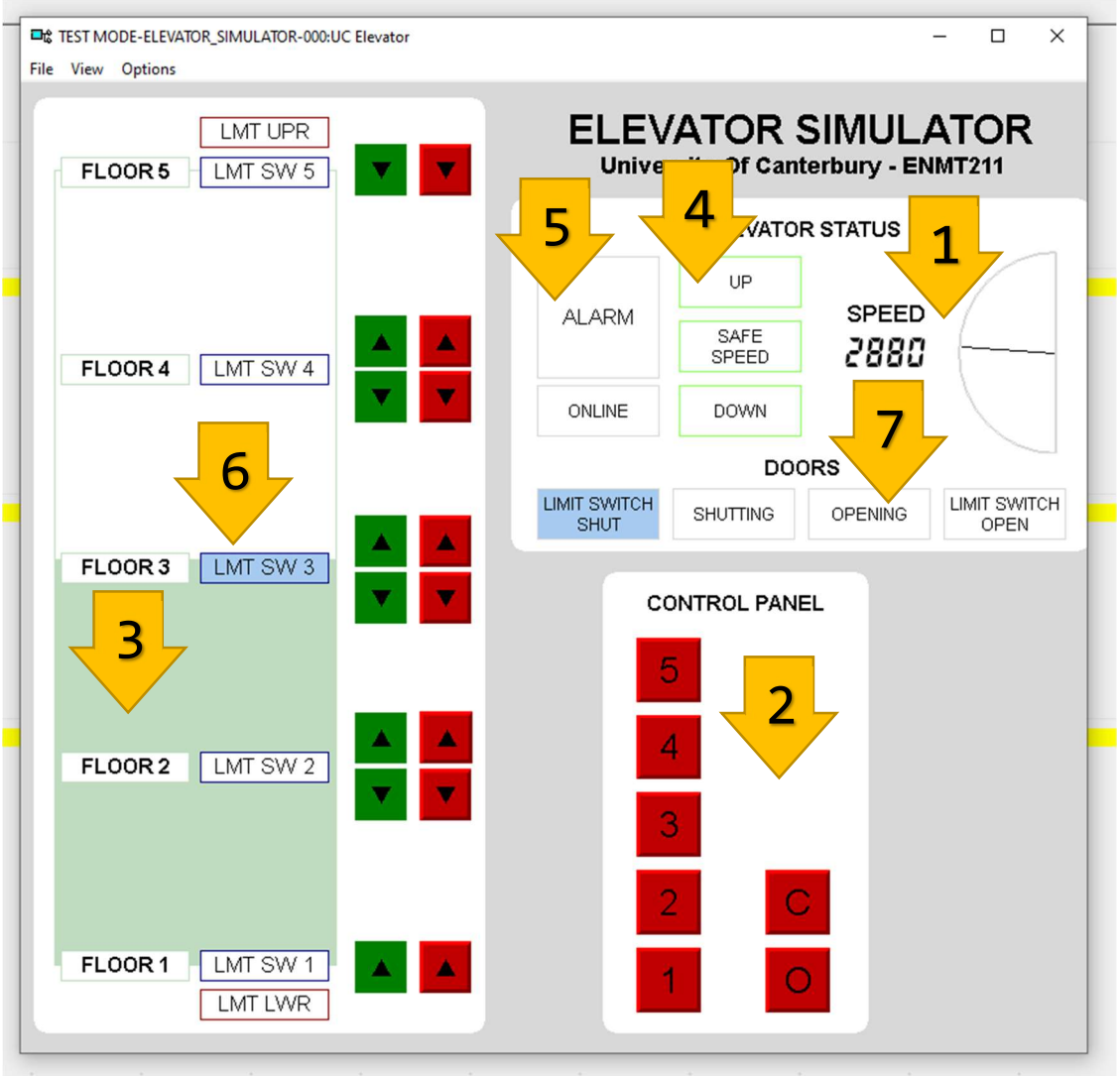


7. The following dialog box will pop up:



8. Enter the path to ELEVATOR SIMULATOR.IPP then click Start
9. The simulator GUI should now appear (if it doesn't pop up above CX-Programmer, look for  on your taskbar, it will be one of those programs) - it should look similar to below:





INDICATOR	FUNCTION
1	Speed Indicator
2	Elevator Control panel (equivalent to the inside buttons on the elevator carriage)
3	Position indicator (the edge between green and white is the current elevator location)
4	Up/Down lamps indicate the elevator direction. Use this to check if the elevator is moving very slowly. The Safe Speed/Overspeed light will change if the winch motor speed is outside the range 0 to 6000 (#0 to #1770).
5	ALARM – this will flash for the same reasons as the alarm on the physical model does.
6	Floor limit switches. Use these to determine if the elevator is at a floor.
7	Door logic lights – these indicate whether the doors are open or shut (using LIMIT_OPEN and LIMIT_SHUT), and whether the doors are currently opening or shutting.