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CAEC Wireless Manual

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1. Components

Wireless Modem

Vehicle Detector

3 Wireless Red/Green LED Lights

Vehicle Sensor

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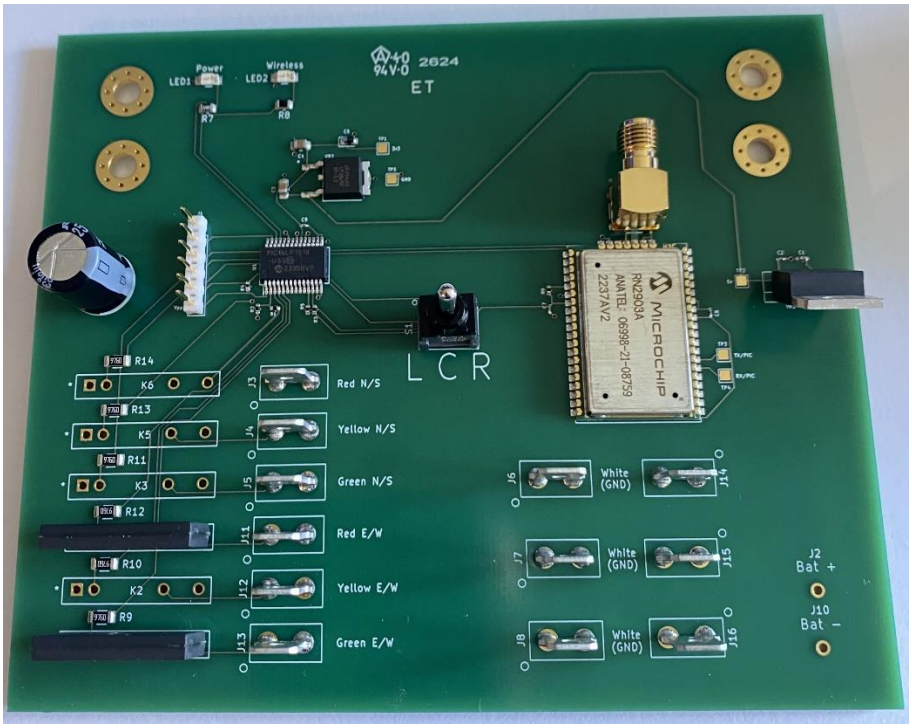
2. Wireless left, center, and right traffic lights setup

Each light is versatile and can function as a right, center, or left light. Adjust its orientation using the toggle switch on the circuit board:

- Move the switch towards 'L' for the light to operate as the left light.
- Set the switch to the middle ('C') position for the center light function.
- Position the switch towards 'R' for the light to act as the right light.

For the CAEC Wireless system, configure one light for each orientation: left, center, and right. After setting their positions, connect the battery to turn on. You'll notice the red LED illuminates on all three lights. They're now primed for pairing with the Evoctech Windows program and the Vehicle Detector.



3. Wireless CAEC system operation

1. Traffic Light Initialization
   - Activate the traffic lights by connecting the internal battery.
   - Check for indicator lights:
     - **Red LED:** Should illuminate on the circuit board.
     - **Green LED:** Should remain off.
2. Setting Up the Vehicle Detector
   - Install vehicle sensors on both sides of the Vehicle Detector.
   - Measure the distance between the sensors using the provided tape measure. This distance will be entered into the Evoctech Windows program to calculate vehicle speed.
3. Activating the Vehicle Detector
   - Power on the Vehicle Detector.
   - Observe the indicator lights:
     - **Red LED:** Will illuminate.
     - **Green LED:** Will remain off.
4. PC/Laptop Connection
   - Connect the Wireless Modem to your PC or laptop.
   - Launch the Evoctech Windows program and ensure you are within range of both the traffic lights and the Vehicle Detector.
   - Observation: Green LEDs on the Wireless Vehicle Detector and all traffic lights should now be active.
5. Configuring the Evoctech Windows Program
   - Enter the measured distance between the vehicle sensors into the program, specifying feet and inches.
   - Delay: Adjust the duration from the moment a vehicle triggers the air hose sensor to the time the traffic lights respond.
   - Mode Selection: Choose the desired mode based on training objectives:
     - L ►: Left light green, both center and right lights show red.
       - Action: Student should steer the vehicle into the left lane.
     - C ►: Center light green, left and right lights show red.
       - Action: Student should steer the vehicle into the center lane.
     - R ►: Right light green, left and center lights show red.
       - Action: Student should steer the vehicle into the right lane.
     - S ►: All lights (left, center, right) show red.
       - Action: Student should brake and avoid entering any lane.
     - 1 ►: Randomized left or right. Center light shows red; either left or right light is green.
       - Action: Student should steer the vehicle into the left or right lane.
     - 2 ►: Random selection among left, center, or right. One light is green; the other two show red.
       - Action: Student should steer into one of the active lanes.
     - 3 ►: Random choice between left, right, or full stop. Functionality is similar to mode (1) but can randomly trigger a stop.

- Action: Depending on the signal, the student should either enter the left or right lane or brake completely.

- 4 ►: Random selection among left, center, right, or full stop. Functional-ity resembles mode (2) but can randomly initiate a stop.
  - Action: Depending on the signal, student should move into the indicated lane or halt.

6. Exercise Initiation
- The student begins by entering the designated exercise area and drives across the vehicle sensor.
- After the preset delay, the traffic lights will illuminate based on the chosen mode.
- The student must respond by moving into the lane where the traffic light is off.

7. Exercise Reset
- 4.5 seconds post the initiation, the traffic lights will deactivate.
- To restart or change modes, return to step 5.

4. Evoctech Windows program to control system

1. Connection:
   - Connect the Collision Avoidance Exercise Controller modem to your laptop using the included USB cable.

2. Launching the Evoctech Program:
   - Upon opening the Evoctech software, it should automatically establish a connection with the modem, Wireless Vehicle Detector, and Wireless lights.

3. Manual Connection:
   - If an automatic connection isn't established:
     3.1 Click on the 'Connections' button.
     3.2 Choose the correct communications port assigned to the modem by your laptop.
     3.3 Click on 'Connect to Lights and Vehicle Detector' to initiate the connection.

4. Configuring Settings:
   - Select your desired 'Mode' and 'Delay' using the dropdown menus. Upon selection, the Wireless Vehicle Detector will instantly update to reflect your choices.

5. Testing:
   - Use the 'Test' button to activate the wireless traffic lights at any time.
   - Observe the red and green indicators located above the 'Test' button; they mirror the traffic lights' status, indicating whether they are active or inactive.

6. The Evoctech Windows program stores the current mode, delay, and connection settings in your device's (laptop) user folder. If the Evoctech program is accidently closed you can reopen the program and click the 'Restore Connected Session' button and your system will be ready to use again with the last mode and delay selected before the program was closed. If the modem becomes disconnected a window will open saying 'Modem is disconnected!'. After reconnecting the modem click 'Connect Modem' and your system will be ready to use again.

5. LED Indicators on Vehicle Detector and Wireless Lights

5.1 Red LED (Power)
- Blinking: The battery voltage is low and requires recharging.
- Steady: The power is stable, and the device is operating normally.

5.2 Green LED (Wireless Connectivity)
- Off: A wireless connection has not been established by the Collision Avoidance Exercise Controller modem.

- Steady: A wireless connection has been established by the Collision Avoidance Exercise Controller modem.

6. Battery information

Only use the charger we have provided. Use the provided connectors to charge the battery in each device. The batteries are to remain inside their devices while charging. Charging time is about 2.5 hours. Power is automatically cut-off when battery is at full charge. Red Led will show battery is charging. Green Led indicates battery is at full charge.

- Only charge Li-Ion battery pack with capacity more than 1500 mAh. Don't use the charger for lower capacity Li-Ion battery packs.
- We are not responsible for any damage caused by user and misuse.
- Do not make any changes to the charger, charger accessories, or connectors, as this might cause electrical shortage, fire or over-heating during charging. We are not liable for the product if any changes are made to the charger, accessories, or connectors.
- **Use special caution when working with Li-ion cells, they are very sensitive to charging characteristics and may explode if mishandled.**
  Make sure user has enough knowledge on Li-Ion rechargeable batteries in charging, discharging and assembly before use.
- We are not responsible for any damage caused by misuse or mishandling of Li-Ion batteries while charging. We are not responsible for damage caused by Li-ion batteries not purchased from us.

7. Charging the Vehicle Detector

8. Charging the Wireless Lights