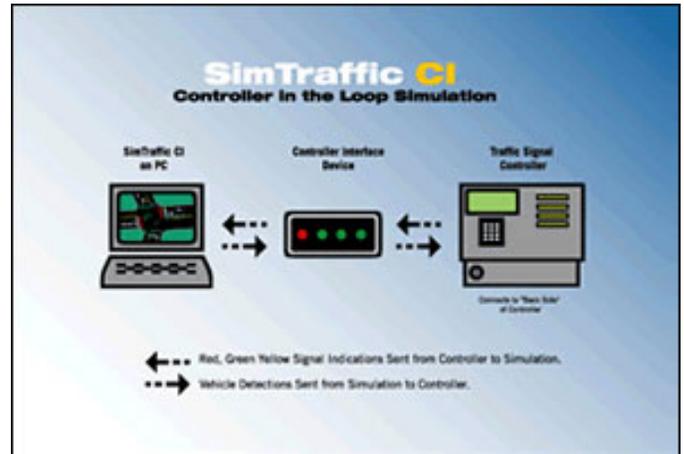


SimTraffic CID

The SimTraffic[®] Controller Interface Device, or CID, is a link between the SimTraffic[®] and a traffic signal controller. The link between software and hardware is known as real time, hardware-in-the-loop simulation. This simulation allows the analyst to fine-tune a traffic signal timing plan using actual signal controller hardware. The CID's hardware-in-the-loop simulation also allows the analyst to test the features of the signal controller from the convenience of the office, rather than out in the field.



The SimTraffic[®] software models vehicles moving through a street network. When simulated vehicles cross over a detector, a call is placed to the signal controller. The signal controller believing it is getting calls from physical detectors, outputs the current phase colors and these results are read back into the SimTraffic[®] simulation software.

The CID connects to signal controllers through the SDLC port. TS2, 2070 and ATC controllers use the SDLC port to communicate with other cabinet devices including load switches, conflict monitor, and detector channels.

Applications

Training

SimTraffic[®] CID makes an excellent training platform for signal technicians and engineers. The system allows operators to explore all features of a signal controller with simulated traffic.

Modern traffic signal controllers are complex machines. Training opportunities are rare and many operators are learning while the system is on the street in traffic.

SimTraffic[®] CID allows operators to learn and experiment without disrupting traffic.

Fine Tune Coordination

The operation of actuated signals is difficult to setup. Modern signal controllers operate with different modes of coordination. The differences are subtle and confusing. Many times a timing plan developed in the office operates differently in the field.

SimTraffic[®] CID enables coordination plans to be tested and experimented with before deployment.

Test Complex Phasing Patterns

Some complex intersections and interchanges require complex and unconventional timings to move traffic without queuing problems. Freeway interchanges and closely spaced intersections can be especially tricky.

Many new developments place huge shopping centers entrances just a few hundred feet from major freeway interchanges. Conventional timing plans are unable to handle the high traffic, high volumes of turning traffic, and short intersection spacing.

SimTraffic[®] CID allows the engineer to experiment with timing plans before implementation. The solution might be to use lagging left turn phases, or to operate multiple intersections on one controller. The solution might involve using advanced control schemes such as fuzzy logic or adaptive control. All of these control methods can be simulated and tested before implementation with SimTraffic[®] CID.

Test LRT, Railroad, or Drawbridge Preemption

SimTraffic[®] CID can be used in some cases to simulate signal preemption.

The operator activates the signal controller's preemption input and the signal controller will simulate the preemption event. In some cases SimTraffic[®] may be able to model the blocking. Future versions of SimTraffic[®] will model LRT vehicles and blocking events.

It is possible to externally preempt the signal to service a Light Rail call, and then view the system return to its normal state and return to coordination.

Test Experimental Adaptive Control Strategies

A number of firms and research institutions are developing advanced adaptive signal control strategies. SimTraffic[®] CID can be used to test the effectiveness of the advanced systems.

If these systems are built with TS2 controllers, SimTraffic[®] CID evaluates and compares their performance to traditional control strategies.