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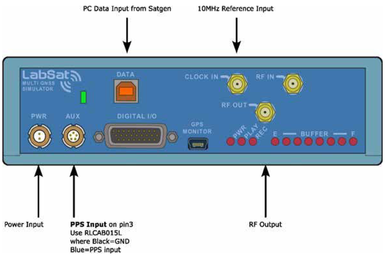
GNSS LOCATION
IN TUNNELS

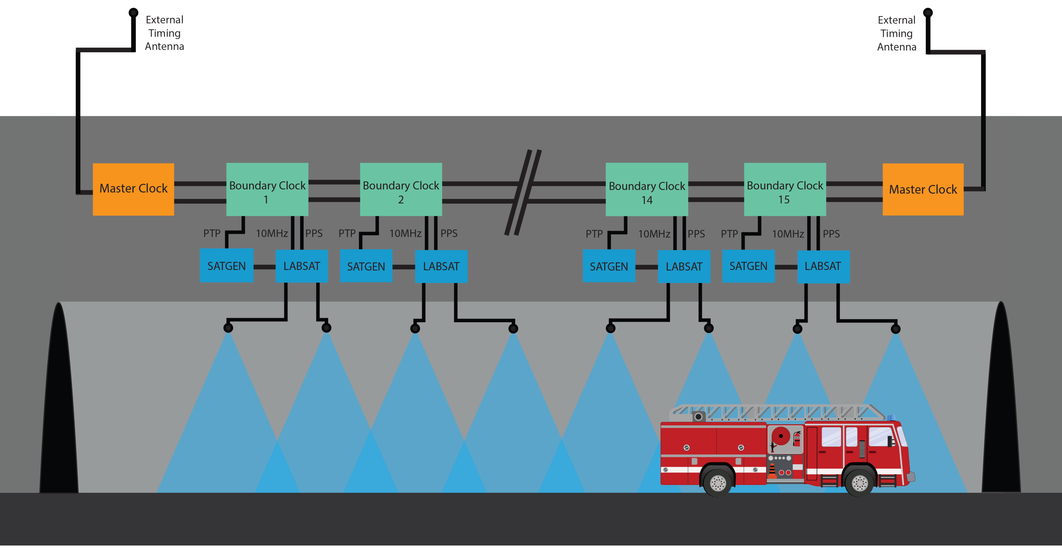
The TunnelSat system allows GPS/GNSS receivers to calculate their Latitude, Longitude, and Altitude within an area without satellite signals. TunnelSat provides a simulated signal that a GPS/GNSS receiver in a vehicle recognises as an actual satellite signal as if it had an open sky view.

To simulate the required GNSS signals, the simulator's time must be accurate within a few nanoseconds of UTC. To achieve this level of accuracy, we need a highly precise time server that can output the Precision Time Protocol (PTP) and a synchronisation signal that is locked to UTC. The Time server feeds the satellite data to a computer running a custom version of the Racelogic's popular Satgen software.



LabSat 3 WIDEBAND

The Satgen software outputs the specific simulator data that allows the LabSat simulators to precisely generate position signals that allow the mobile GNSS receivers to calculate their position. The simulators synchronise with the timing signals from the Time Server, and then generate the satellite RF signals for each of the radiating antennas mounted in the ceiling of the tunnel.



The Step Global GNSS Tunnel Simulation System offers:

- REAL TIME LOCKED TO UTC
- ACTUAL SATELLITE DATA
- ANY POSITION CAN BE SIMULATED
- C/A CODE MATCHED TO ACTUAL LONGITUDE / LATITUDE / ALTITUDE OF LOCATION IN TUNNEL.
- SPOOFING AND JAMMING DETECTION AND CORRECTION
- FULLY REDUNDANT ARCHITECTURE, NO SINGLE POINT OF FAILURE
- EXTENSIVE MONITORING AND REPORTING