

TempSens™ for Rail Applications

C1D1 Certified for Hazardous Locations

Electrolab's TempSens™ is specifically designed to measure and monitor the temperature of petroleum products, chemicals, liquids, asphalts, and other media transported by rail car. Frequently, these types of materials are heated at railroad terminals as they are moved across the country from their point of origin to a destination site for loading or unloading. Accurately monitoring the temperature of the material inside the rail car tanks is critical to ensure safe transportation, as well as efficient loading and unloading.

TempSens™ is C1D1 certified for use in hazardous locations when used with a C1D1 intrinsically safe wireless head or barrier. The sensor features a 1/2" diameter temperature probe with two temperature sensors: one located at the bottom of the probe and one four feet from the bottom. The sensor itself has a 2-inch male, NPT process connection which can be adapted to slide easily through a Cam Lock fitting located on the top of the tank. TempSens™ can be mounted at the yard or manually inserted into the tank.

Electrolab's TankChek LCD210 provides an easy-to-view, easy-to-install C1D1 local, ground-level display for reading up to 2 temperatures on up to 8 devices at one time. This allows rail yard personnel to monitor temperature locally at the tank and to safely stay off the tanks except when needed to install or remove the TempSens™.

Open communication protocols allow TempSens™ to interface with many partners' wireless radios and gateways to transmit temperature data directly to a PLC or control room for monitoring and control of the heating process.



Specifications

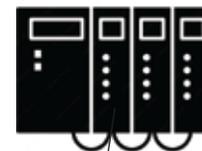
MATERIAL	316L stainless steel, 18-gauge; 1/2" stainless steel probe enclosure offers a small footprint to fit in most tanks. Treated with e9 Treatments' Pro Performance to help deter buildup and to create an easy to clean surface.
LENGTH	Standard configuration: 8 feet; 18" inches above the tank port, 6.5 foot probe inside the tank. Custom lengths available.
TEMPERATURES	Two temperature readings, one at the bottom of the probe, one 4 feet from the bottom. Placement can be customized. +/- 1.5C accuracy
TEMPERATURE RANGE	-25 to 80°C (0-176°F)
POWER REQUIREMENT/ CONSUMPTION	5.6 VDC to 13 VDC 15mA nominal, 20mA maximum
PRESSURE	Up to 40 psi standard
COMMUNICATIONS	Wireless compatibility with preferred partners; Ethernet through a wireless gateway and Modbus protocols
CERTIFICATION	Class I, Div 1, Group D hazardous locations when used with a C1D1 intrinsically safe wireless head

Installation Diagram

Electrolab's TempSens™ installs in the rail car tank where it wirelessly transmits data to a third-party wireless gateway, located centrally on the rail yard grounds. The gateway is wired to a PLC or SCADA system which requests temperatures and transmits them to a TankChek 210, which is snooping on the communications line. The TankChek 210 displays the temperatures locally, at or near the rail car.

Electrolab TempSens™ with third-party wireless node mounts in rail car tank using a 2" male NPT process connection to ensure safe suspension of the TempSens™ probe.

Wireless node communicates temperatures to a gateway located in the rail yard



Gateway sends data to a PLC for recording and trending. The gateway connects to the PLC via Modbus or Ethernet connection.



Electrolab's TankChek (optional) acts as a Modbus snooper on the communications line to display temperatures locally at ground level by the rail car. TankChek is hardwired to the wireless gateway.