

# 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 and can be customized with one to three temperature sensors at customer-specified locations. 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 a 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 16 process variables at one time (for example: 2 temperatures on up to 8 sensors). 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

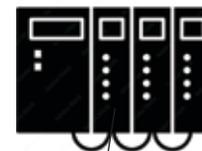
<b>MATERIAL</b>	304L stainless steel, 18-gauge; 1/2" stainless steel probe enclosure offers a small footprint to fit in most tanks. Treated with e9 Treatments' Pro Performance to help deter buildup and to create an easy to clean surface.
<b>LENGTH</b>	Standard configuration: 7.5 feet; 18 inches above the tank port, 6 foot probe inside the tank. Custom lengths available.
<b>TEMPERATURES</b>	One to three temperature readings. Placement can be customized.
<b>TEMPERATURE RANGE</b>	-25 to 495°C (0-923°F), accuracy of +/- 0.3°C at 0°C and +/- 1.8°C at 300°C
<b>POWER REQUIREMENT/ CONSUMPTION</b>	5.6 VDC to 13 VDC 15mA nominal, 20mA maximum
<b>PRESSURE</b>	Up to 250 psi
<b>COMMUNICATIONS</b>	Wireless compatibility with preferred partners; Ethernet through a wireless gateway and Modbus protocols.
<b>CERTIFICATION</b>	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 (optional), 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.

