

# 1-Wire Temperature Sensor

## Overview

1-Wire Temperature sensor is a unique and highly precise temperature sensor for monitoring mobile refrigerated compartments on trucks and trailers.

The sensor when attached to vehicle/asset tracker gives the user the ability to see running temperature readings with alerts to notify personnel of any potential challenges with regard to the temperature status of the vehicle's precious cargo.



## Features

- Unique 1-Wire® interface requires only one port pin for communication
- Each device has a unique 64-bit serial code stored in an onboard ROM
- Multidrop capability simplifies distributed temperature sensing applications
- Requires no external components
- Can be powered from data line. Power supply range is 3.0V to 5.5V
- Measures temperatures from  $-55^{\circ}\text{C}$  to  $+125^{\circ}\text{C}$  ( $-67^{\circ}\text{F}$  to  $+257^{\circ}\text{F}$ )
- Thermometer resolution is user-selectable from 9 to 12 bits
- Converts temperature to 12-bit digital word in 750ms (max.)
- Applications include tracking devices, thermostatic controls, industrial systems, consumer products, thermometers, or any thermally sensitive system

## Technical Specifications

|                   |           |   |
|-------------------|-----------|---|
| Supply Voltage    | $V_{dd}$  | Min : +3V, Max: +5.5V   |
| Thermometer Error | $t_{ERR}$ | Range : $-10^{\circ}\text{C}$ to $+85^{\circ}\text{C}$ , Error: $\pm 0.5^{\circ}\text{C}$ |
|                   |           | Range : $-55^{\circ}\text{C}$ to $+125^{\circ}\text{C}$ Error: $\pm 2^{\circ}\text{C}$    |
| Sink Current      | $I_L$     | Minimum: 4.0mA  |
| Standby Current   | $I_{DSS}$ | Typical: 750nA, Maximum: 1000nA   |
| Active Current    | $I_{DD}$  | Typical: 1mA, Maximum: 1.5mA  |