Temperature Monitoring

The latest Vecima beacon models include support for connection to a Temperature Sensor which supports the 1-Wire communications protocol.

Fleet Managers now have the ability to monitor temperature-sensitive cargo, and receive alerts in the Vecima portal if configurable temperature thresholds are violated.

Temperature Sensor

The 1-Wire Temperature Sensor recommended for use with Vecima beacons is manufactured by Embedded Data Systems. Sensors may be obtained by following this link.

Full Specifications for the probe may be found here.

1. Sensor Installation and Testing

The 1-Wire data connection on the Vecima Beacon is located on Pin 6 on the wiring harness, which is attached to the gray wire in the bundle. This wire should be connected to the data wire on the Temperature Sensor, which is the blue colored wire on the recommended Embedded Data Systems device. The other two wires that come with the sensor device (white and orange) should both be connected to Ground. The recommended Ground source is the black wire on Pin 1 of the wiring harness.
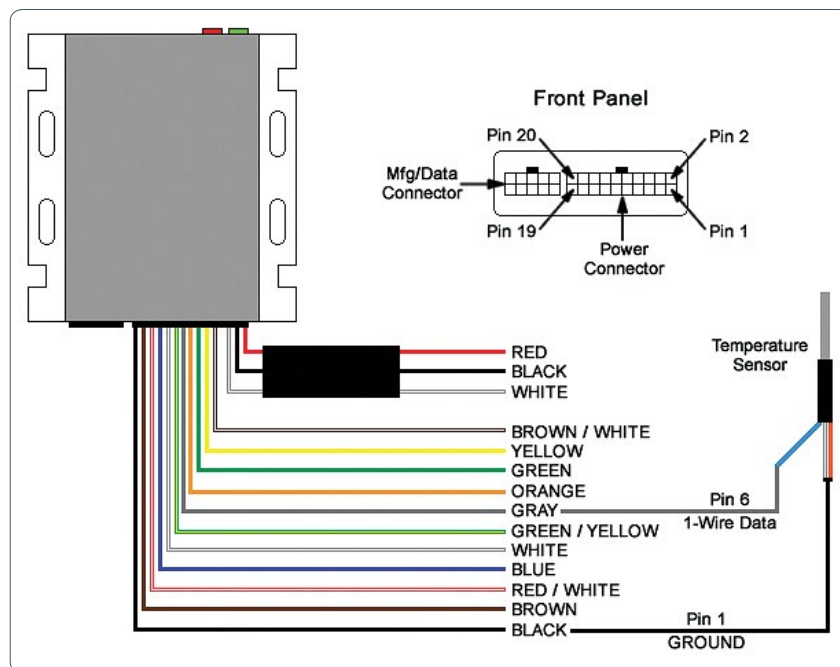
Supported Beacons

The 1-Wire Temperature Alert feature is currently available for all Vecima 65xx and 66xx beacon models.

Please refer to the following Temperature Sensor Wiring Diagram.

Temperature Sensor Wiring Diagram

Once installed, the Temperature Sensor may be tested using the Beacon Test page in the Partner Portal, or by using the Vecima Mobile Beacon Test Tool. A fourth test has been added to the tool, which when used will send a message to the beacon to test the sensor. If the test passes, the current temperature read by the sensor is returned. If a wiring error is detected this will be reported. Or, if the sensor cannot be found, a connectivity error is reported.

Beacon Test Tools – Temperature Sensor Test

Test 4 (optional): Temperature Sensor Status

If a temperature sensor is connected to the beacon, this test checks the wiring and returns the current temperature reading if the sensor is correctly installed. | go! |

2. Scenario Configuration

In order to receive periodic temperature readings from the probe, or to receive alerts based on temperature thresholds, a Temperature Sensor scenario must be configured.

By default, when the scenario is active, periodic temperature readings are obtained from the probe. Because temperature data is sent to the Vecima server attached to other location events, the best way to obtain regular temperature readings is to have a Tracking scenario active at the same time as the Temperature Sensor scenario. Each location received by the Tracking scenario will have a current temperature reading included with the event.

Because Tracking events are only transmitted while the vehicle ignition is on, the Temperature Sensor scenario may also be configured to periodically return temperature results while the ignition is off. The frequency of ignition-off polling may be set to every 5, 10, 30 or 60 minutes.

A custom schedule for the Temperature Sensor scenario may be used, but it is recommended that the schedule is the same as, or falls within the active schedule for the associated Tracking scenario. If the Temperature Sensor scenario is active while the Tracking scenario is not, you will not receive periodic readings since Tracking events are not being received.

Temperature Sensor Scenario Configuration

Temperature Threshold Alerting

The Temperature Sensor scenario may also be configured to raise an alert and send notifications if the temperature crosses either a high or low threshold.

The user may select the default unit (Fahrenheit or Celsius), which also applies to event reporting.

If this option is enabled, the user must enter at least one Temperature Threshold when configuring the scenario. If the temperature reported by the sensor is greater than the "Above Threshold" for a user-defined period of time, an alarm event is generated. Similarly, an alarm is generated if the temperature is less than the "Below Threshold" for a user-defined period of time.

In both cases the period of time, called the "Threshold Duration", is configurable in a range from 5 seconds, which is the equivalent of the alarm being generated immediately, up to 15 minutes.

As part of scenario configuration, e-mail and/or SMS text notifications may be configured for Temperature Sensor Alert events in the same manner as other events supported by the Vecima beacon. Temperature Sensor events may be configured to raise Incidents at the monitoring station if this feature is included in the service plan.
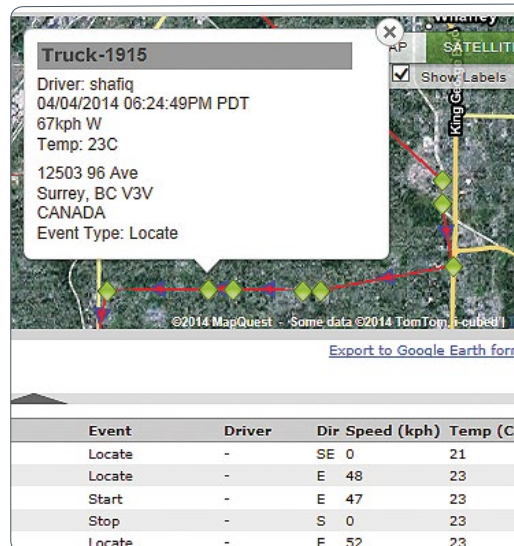
Check Temperature Sensor

If the system detects that the sensor is not configured correctly or is returning erroneous results, a "Check Temperature Sensor" event will be generated. This indicates that there may be a wiring issue, or the sensor may be defective. Please inspect the wiring of the device and correct any problems.

If the issue is not resolved please contact Vecima Support at telematics.support@vecima.com for further diagnosis.

3. Event Reporting

Temperature data appears in Map View, Route Log, and Event Detail reports, displayed with the events that the data is attached to. The example below shows a Route Log with temperature data included with Locate, Start and Stop events.

Route Log with Temperature Data

Event	Driver	Dir	Speed (kph)	Temp (C)
Locate	-	SE	0	21
Locate	-	E	48	23
Start	-	E	47	23
Stop	-	S	0	23
Locate	-	E	52	23

Temperature Sensor Alert events and Check Temperature Sensor events are recorded for later reporting in the Dealer Portal. The example below shows Temperature Sensor Alert events displayed in the Event Detail Report.

Event Detail Report – Temperature Sensor Alert

Event Detail Report					
Time Period: 09/17/2013 04:15PM to 09/17/2013 05:00PM			Report Summary		
Item Name: 1915-Office3			Temperature Sensor Alert:		3
Beacon Name: 1915-Office3					
Grouped By: Event					
Temperature Sensor Alert:					
Date/Time (Pacific)	Nearest Address	Scenario	Temp (F)	Event	
09/17/2013 04:25:57PM	(Contigo) 1025 Hamilton St, Vancouver, BC, CANADA, V6B 5T4	Temp Sensor	42	Below threshold	
09/17/2013 04:23:49PM	(Contigo) 1014 Homer St, Vancouver, BC, CANADA, V6B 2W9	Temp Sensor	106	Above threshold	
09/17/2013 04:17:57PM	(Contigo) 428 Nelson St, Vancouver, BC, CANADA, V6B 6K6	Temp Sensor	34	Below threshold	

This report shows an example of a Check Temperature Sensor event, also in the EDR.

Event Detail Report – Check Temperature Sensor

Event Detail Report					
Time Period: 09/17/2013 02:00PM to 09/17/2013 03:00PM			Report Summary		
Item Name: 1915-Office3			Check Temp Sensor:		1
Beacon Name: 1915-Office3					
Grouped By: Event					
Check Temp Sensor:					
Date/Time (Pacific)	Nearest Address	Scenario	Temp (F)	Event	
09/17/2013 02:39:17PM	(Contigo) 425 Nelson St, Vancouver, BC, CANADA, V6B 6K6	Temp Sensor	-	Check Temp Sensor	

4. Important Considerations

• Please note that a special wiring harness is required for installations that include 1-Wire devices. This harness provides additional protection for the 1-Wire circuitry in the beacon. Please contact Vecima Support at telematics.support@vecima.com if necessary to verify that the correct harness has been supplied.

• Only one temperature sensor may be connected to the Vecima beacon at this time.

• The system checks the sensor to determine whether or not it is defective whenever the beacon detects an ignition-on event. In order for proper diagnosis to occur, an ignition scenario should be created for the beacon.

• The 1-Wire Data bus on Pin 6 of the wiring harness is a shared connection. If the Vecima Driver ID feature is also used, the Temperature Sensor will be wired to the same pin as the iButton reader.

If you are still experiencing difficulty obtaining appropriate readings from the temperature sensor after following the steps in this document, please contact Vecima Support at telematics.support@vecima.com.