



Infrared Belt Temperature System

USER GUIDE 1.00



Made in Italy



www.aim-sportline.com



Infrared Belt Temperature System

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1. General Information

What is Infrared Belt Temperature system?

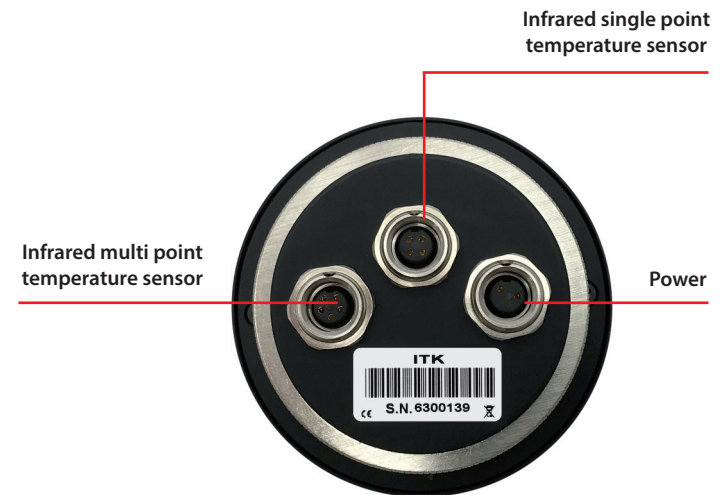
The Infrared Belt Temperature system is composed by a gauge (1), a sensor (2), the sensor fixing kit (3) and the power cable (4).

It is proposed with one between two different sensors: Infrared single point temperature sensor (image below on the left) and Infrared multipoint temperature sensor (image below on the right).



The **Infrared single point temperature sensor (ISTS)** shows an average temperature information of the controlled area.

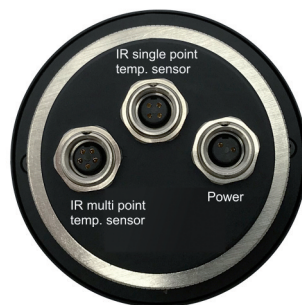
The **Infrared multipoint temperature sensor (IMTS)** divides the area into 16 small portions and transmits, through a CAN communication line, the 16 values (one per portion) every tenth of a second. The information is shown on the TFT display of the gauge in a graphical way, where each color (from Green to Red) indicates a different temperature range. More information on the sensor installation can be found at the end of the manual.



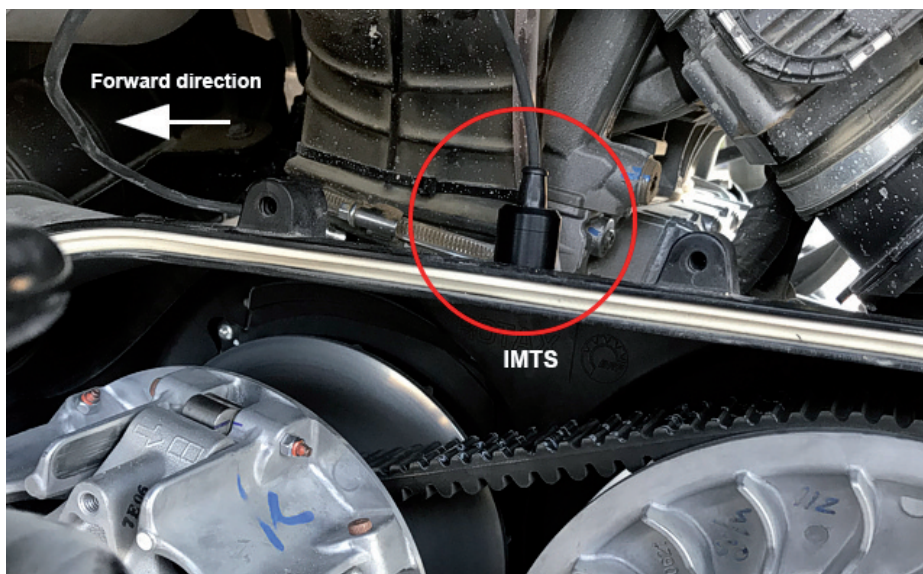
2. Installation

The Gauge has three input connectors on the back:

- one to connect the Multipoint sensor
- the second to the Single Point and
- the third to the external, 12V, not stabilized power, using the dedicated cable, included in the kit



The image below shows an infrared multipoint belt temperature sensor installed.



3. General Features

The Gauge displays:

- temperature information from the Infrared Single Point or Infrared Multipoint Temperature Sensor (first and second images from the left here below)
- external supply voltage (third image from the left here below)

The temperature data are recorded once every 10 seconds, saving the maximum temperature measured in that period of time. From the online pages, each sample of the historical graph shows the maximum recorded temperature over the last 20 seconds.



It is possible to set different alarm and warning thresholds for temperature and supply voltage readings. In accordance to the level of the thresholds, the temperature value is shown:

- white (no alarm) while it will be green for the supply voltage
- yellow (over the warning threshold)
- red (over the alarm threshold). In this last case, the LED blinks RED.

The 2 buttons of the gauge generally offer 2 functionalities, based on the duration of the press.

- Single press: button pressed for a small fraction of a second
- Long press: button pressed for about 1 second

4. Menu

From the online pages, single-press the left button, to enter the Menu to set the parameters:

- Alarms Setting
- Sys Info



4.1. Settings

It is possible to set two thresholds for the Temperature and the Battery Voltage, as in the following example:



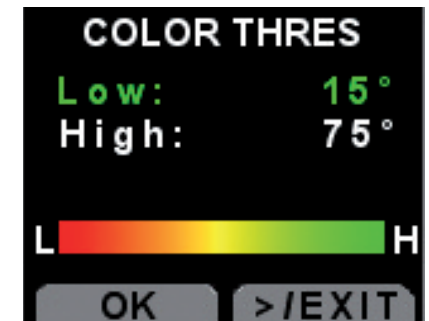
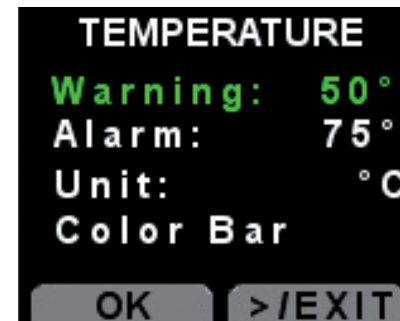
4.1.1 Temperature

It is possible to set two different thresholds for the temperature: a Warning level and an Alarm level.

- the temperature is normally shown in white.
- when the temperature rises above the Warning Level, it is displayed in yellow and a warning message appears at the top of the screen.
- when the temperature rises above the Alarm level, it is displayed in red, a message appears at the top of the screen and a red LED starts blinking.

In this menu page it is also possible to choose the preferred unit of measure for temperature between Fahrenheit (°F) and Celsius (°C).

In case the gauge is connected to an Infrared Multipoint Temperature Sensor, it is possible to define the thresholds of the color bar: Low threshold, associated to the Green color, and High threshold, above which the color bar is Red.



4.1.2 Battery

It is possible to set two different thresholds for the battery: A Warning level and an Alarm level.

- the battery voltage is generally shown in Green.
- when the battery voltage values fall beneath the Warning Level, it is displayed in yellow and a warning message appears at the top of the screen.
- when the external voltage values fall beneath the Alarm level, it is displayed in red, a message appears at the top of the screen.



4.2 System Information

In this section of the menu, system information is shown to the user, in particular:

- SN: device serial number
- FW: firmware version
- BOOT: booter version



4.3 Online pages

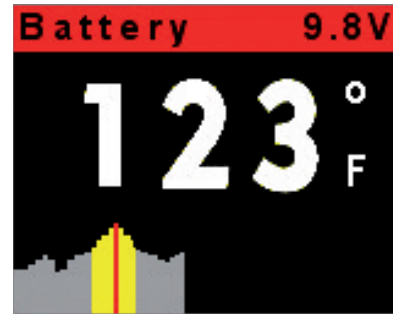
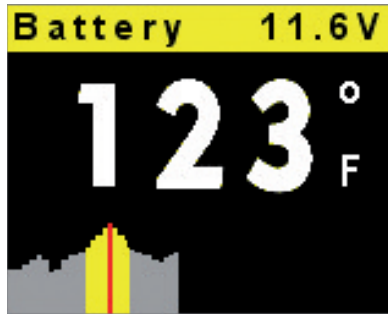
From the first displayed page, it is possible to navigate between the various features using ">/Data" button.

Once the startup procedure completes, the main online page is displayed. Depending on which sensor is connected, a specific display pages will be shown. When a sensor is connected to the device on the top left corner a timer displaying the hours and minutes from startup of the system.

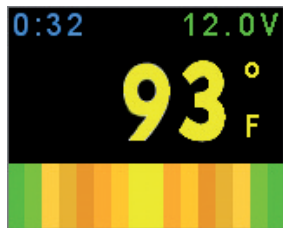
Infrared Single Point Temperature Sensor



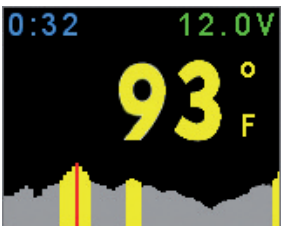
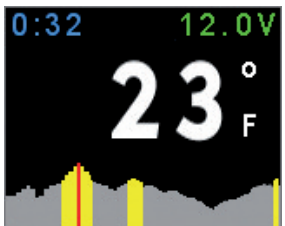
In case of **only battery warning/alarm** (same for Infrared Multipoint Temperature Sensor page):



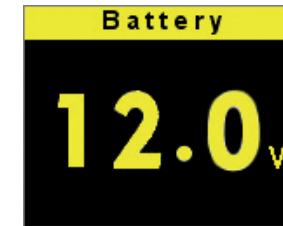
Infrared Multi Point Temperature Sensor



Alternatively, when IMTS is connected, also the recent history is shown in the lower part of the display as when using the analog single point temperature sensor.



If no sensor is connected, the external voltage will be displayed in the "Battery" page.



Maximum Temperature: the maximum temperature value is automatically reset at the power on.



4.4 – Data recall pages

From the Online page with a long press of the right button it is possible to access the Data Recall section, for revisiting the data of the last 25 tests.

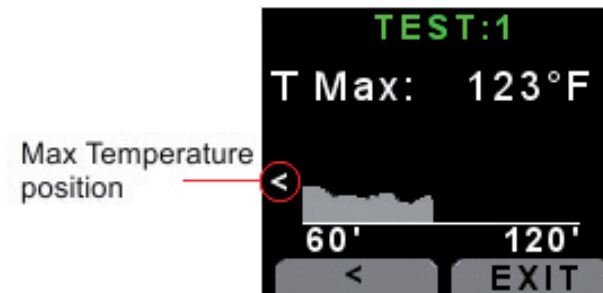
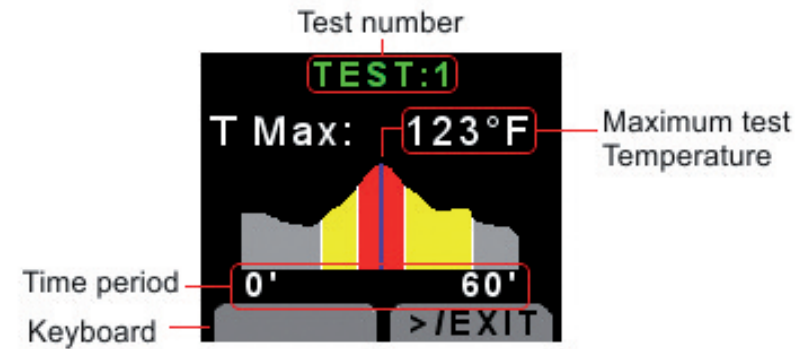
A test starts when the power is turned ON and finishes when the power is turned OFF.

A test is supposed to be longer than 2 min and shorter than 5 hours. In case a test is shorter than 2 minutes, it is not recorded, while in case it is longer than 5 hours, a new test is automatically generated.

For each test its length and the maximum temperature is indicated.

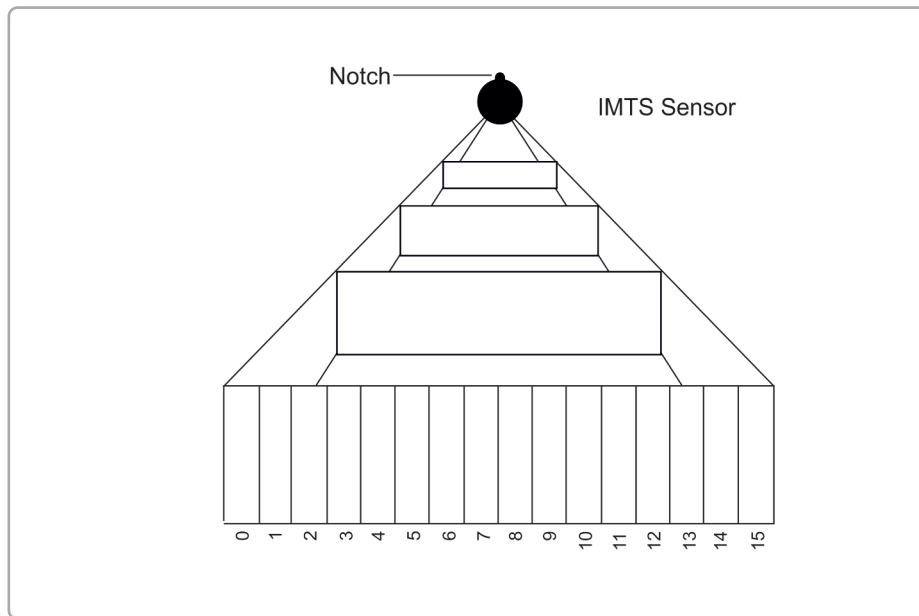
| # | TMAX | LEN |
|------|------|--------|
| 1 | 123° | 90' |
| 2 | 105° | 75' |
| 3 | 99° | 175' |
| 4 | 75° | 66' |
| </OK | | >/EXIT |

The selected test temperature graph is shown in variable-size time interval depending on the test length. For long tests, 60-minute time intervals are used as in the following examples.



5. The Infrared Multipoint Temperature sensor

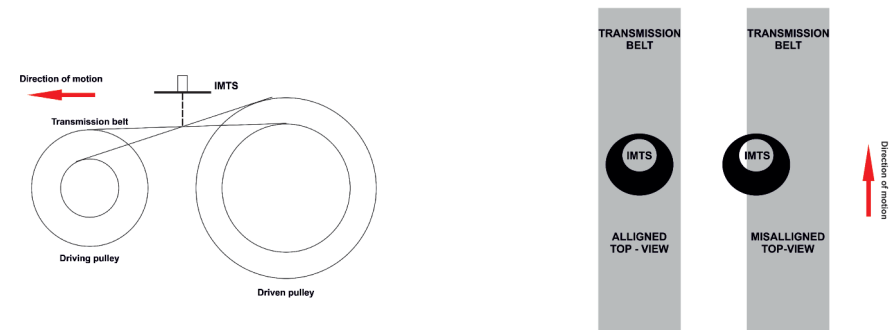
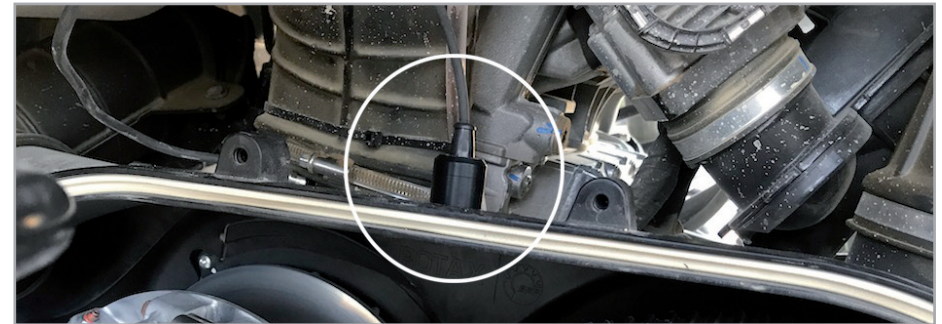
The Infrared Multipoint Temperature Sensor sends over a CAN communication line 16 values each coming from a portion of its field-of-view (FOV) as in the image:



Where measurement 15 will be the leftmost portion and measurement 0 the rightmost portion of the sensor FOV measured.

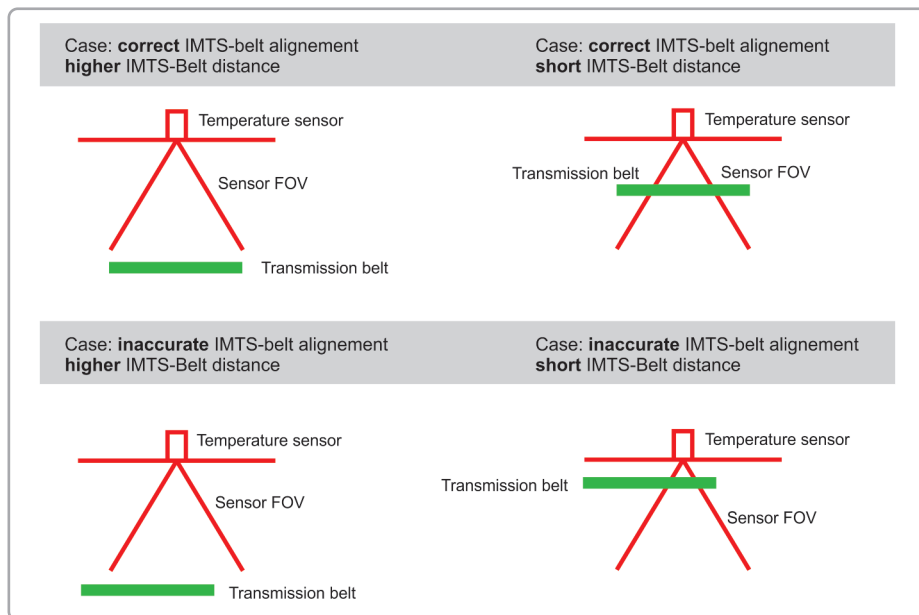
The optimal position for the sensor is shown in the following images:

- Top: IMTS installation on CVT transmission
- Bottom left: lateral view
- Bottom right: top view



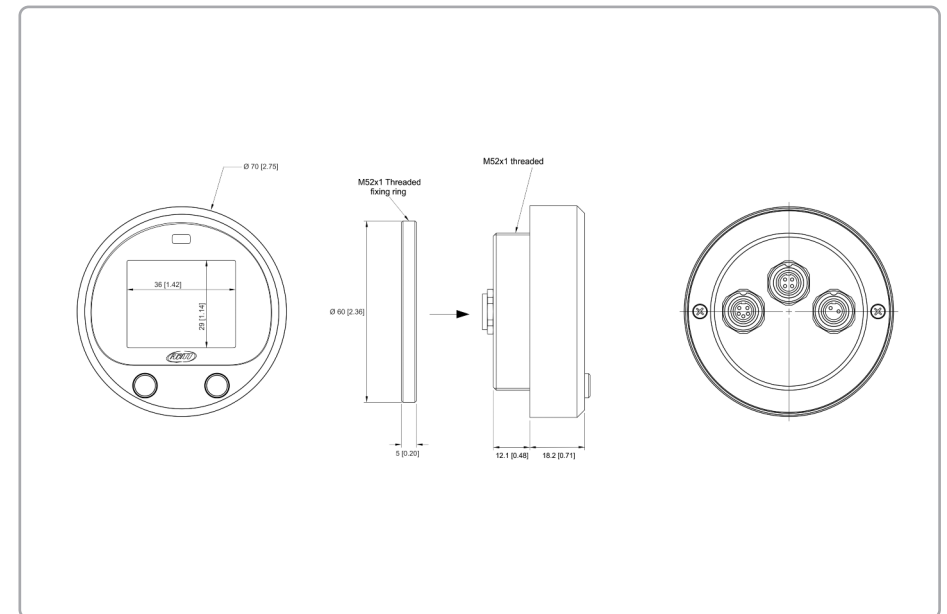
Which is in the central point between the center of the driving and driven pulley of the CVT transmission, with the central point of the sensor FOV in the center point of the transmission belt.

This installation of the sensor should minimize the extreme cases of the following picture.
It is possible to see in the 2 bottom diagrams, how misalignment can cause imperfect readings from the surface of interest.

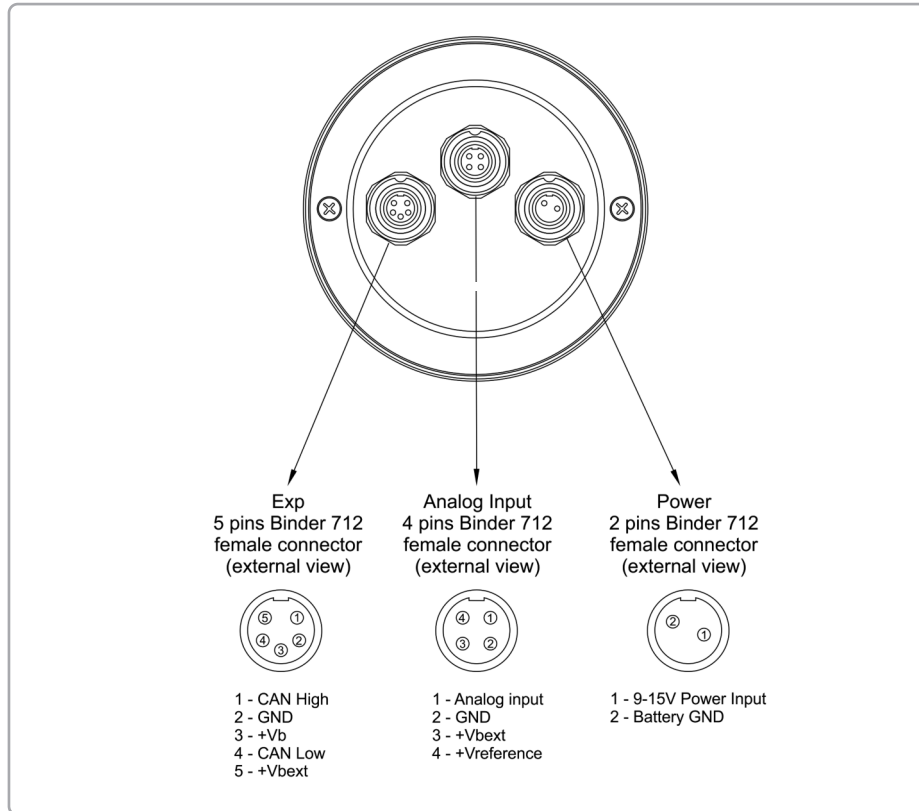


6 Technical drawings

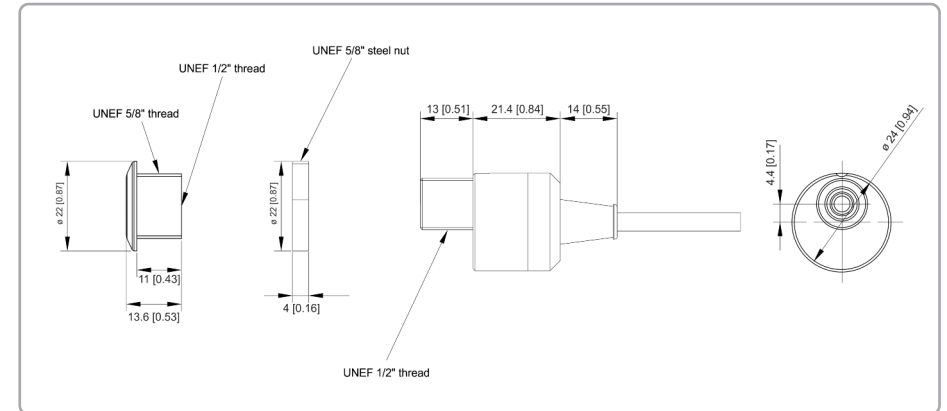
Infrared Belt Temperature system dimensions in mm [inches]



Pinout Infrared Belt Temperature system



Infrared Multipoint Belt Temperature Sensor dimensions in mm [inches]



Pinout of Infrared Multipoint Belt Temperature Sensor

