RoadWatch® Field Calibration Unit:

The FCU is designed to verify and calibrate RoadWatch® sensors. The RoadWatch® sensor is a type of infrared (IR) temperature measuring device. IR temperature sensors work by detecting the amount of thermal energy given off by an object in its field of view. As a camera picks up the intensity and color of light to recreate an image, an IR detector must 'see' its target. The IR intensity is related to the temperature, as well as the color, which can be thought of as the surface type or *emissivity* of the object(s) viewed by the sensor.

How it works:

The FCU uses a simple passive block as a calibration target. The block is made of specially chosen material that conducts and retains heat to ensure a uniform and stable temperature. This, along with the special surface coating provides a high fidelity model which closely reproduces the way the sensors operate in the real world application. At the factory, the block's temperature is precisely measured using a certified and traceable temperature sensor. This reading is then used to certify an IR sensor which is supplied with the unit. This standard then becomes the traceable measurement that is used to indicate the FCU's target block temperature during the normal operation.

RoadWatch® FCU™ is a Product Brand of

Commercial Vehicle Group, Inc.

Patent Pending

TO PLACE AN ORDER

CALL CUSTOMER SERVICE

(888) 452-4053

RoadWatch™

Field Calibration Unit
Infrared Temperature Measurement Validation

Introducing a new way to verify your infrared temperature sensors. This instrument has been specifically designed to quickly check and recalibrate RoadWatch® sensors. Using patent pending technology, real-world test conditions are accurately modeled to provide the best in-the-field sensor validation. IR temperature sensor recertification has never been easier.

Key Product Specifications:

> *High visibility OLED display and tactile 3 button keypad*

> ***Certified Standard Sensor***

- *±1 ℉, .5℃ ± 1 digit accuracy*
- *0 to 140℉ operating range*
- *20 to 105℉ calibrated range*

> ***FCU Temperature****

- *20 to 100℉ storage range*
- *65 to 85℉ operating range*
- *±1 ℉ per minute stability***

> ***Calibration Target**** *(With special .96 emissivity road simulating coating)*

> ***Power Supply***

3.6 to 5.3Vdc, 200mA max.

> ***Hard Shell Shipping/Storage Case*** *(standard)*

> ***Full 1 Year Warranty***
Parts & Manufacturing Defects

**Non-condensing humidity*
***Required to meet best accuracy*

Overview:

Infrared (IR) temperature measurement techniques and devices have been around for a long time. They work by the fundamental physics principal termed radiation heat transfer. Two surfaces that have different temperatures will tend to heat or cool each other, without contact, even in the voids of space. The sun warms the earth by radiation heating alone.

Problem:

Today's most popular non-contact thermal sensors detect the IR energy given off by a target object's surface. This produces a very small temperature change inside a sensor element. The sensor amplifies this and uses its base temperature to arrive at an estimate of the temperature emitting the IR energy. The amount of energy does not only depend on the temperature of the surface, but also the type of surface of the target (emissivity). The sensor which can be thought of as a special camera, must have a clear view of the target. Reflections, changes in viewing angles and distances can create 'mirages' which can cause false readings. These factors as well as other minor effects can make even the best IR sensors seem inaccurate.

Solution:

The RoadWatch FCU has been designed to minimize errors comprising a complete test environment. All the key pieces to provide a repeatable and accurate sensor validation are included. The target surface, view, and distance are held within the test fixture. The sensors and target are thermally stable and are not dependent on external control and utilize common mode symmetry to minimize drift errors.

Key Pieces:

< Main FCU

The instrument housing is made of heavy gauge steel with a tough powder-coated paint. Designed to last a lifetime, the enclosure protects the processor unit that makes the calibration process fully automated.

< RoadWatch® Sensor (STD)

A specially configured RoadWatch sensor is supplied with every FCU. This sensor is a traceable standard which allows a yearly recertification of infrared temperature sensors, including all RoadWatch Sensors models SS and beyond*.

< Calibration Target

Each FCU contains a specially coated target block. This allows a direct calibration of infrared sensors without using correction factors required with the use of other black-body calibrators.

< Hardshell Case

Calibration kit includes a custom made hardshell case. Easy to carry yet rugged for secure storage and transport.