



GAI-TRONICS®
A HUBBELL COMPANY

TempSense Model TS100

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Confidentiality Notice

This installation and operation manual contains sensitive business and technical information that is confidential and proprietary to GAI-Tronics. GAI-Tronics retains all intellectual property and other rights in or to the information contained herein, and such information may only be used in connection with the operation of your GAI-Tronics product or system. This manual may not be disclosed in any form, in whole or in part, directly or indirectly, to any third party.

General Information

The TempSense Model TS100 measures and captures EBT (elevated body temperature) or EST (elevated skin temperature) of subjects moving through its field of view. The TS100 consists of one FLIR® (forward looking infra-red) camera and one standard video camera sharing the same FOV (field of view) in a wall, pole, or stand mountable enclosure. The TS100 captures 608 × 464 resolution images on both cameras and displays them side by side on a 1280 × 720 resolution HDMI monitor when the highest temperature in the FOV is above the configurable preset temperature. The TS100 also captures still images by pressing the video-capture button.

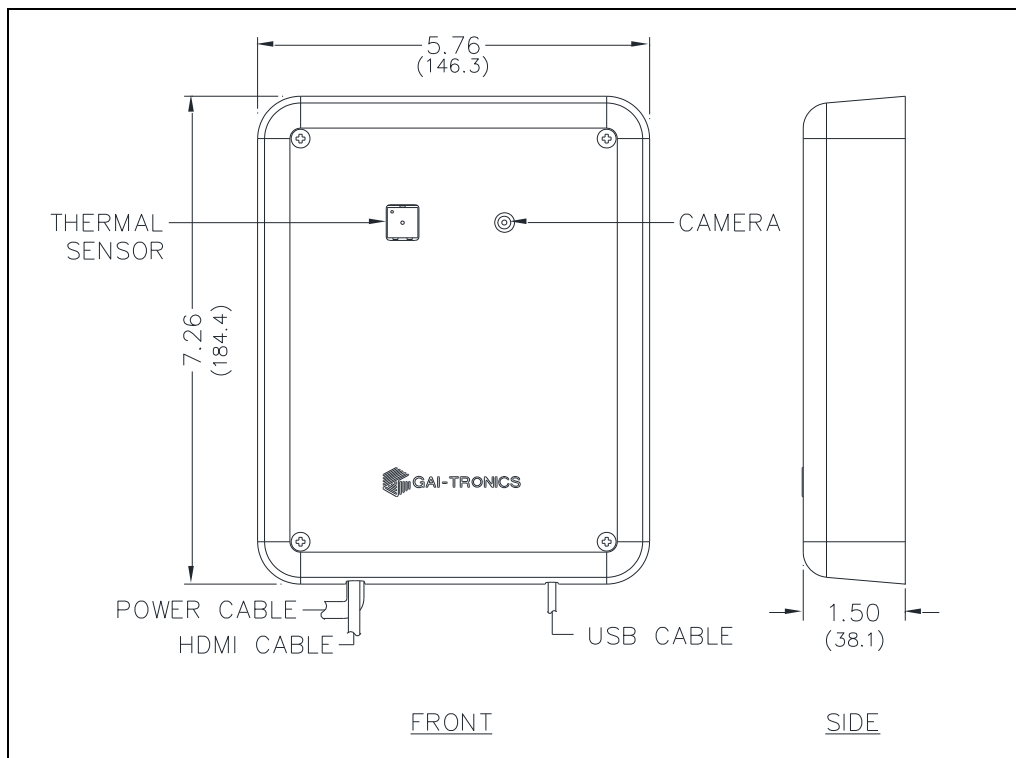


Figure 1. TempSense Model TS100

Installation

NOTE: The accuracy of the TempSense TS100 requires individual subjects pass within two to six feet of the thermal imaging camera lens. Results with different camera positions may vary. Thermal imaging camera accuracy improves as the subject moves closer to the camera.

Customer Provided Equipment

The customer is responsible for providing the following equipment to work with the TempSense TS100:

- HDMI cable
- monitor (1024×768 minimum resolution)
- USB compatible mouse
- mounting hardware (*dependent upon mounting method*)

Camera Location

Locate the TempSense TS100 so that people in a queue individually pass through the two cameras' shared FOV (field of view) while facing the cameras. Each subject should come within two to six feet of the cameras. The ideal height for camera installation is 5 feet 5 inches above the floor. Installation at a higher location requires aiming the TS100 downward so that each subject's forehead passes through the center of the FOV (see [Figure 2](#) and [Figure 3](#)).

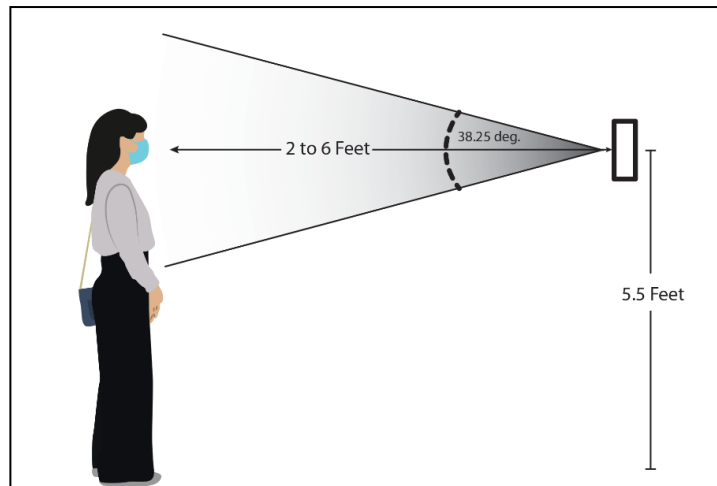


Figure 2. Camera Positioning (Side View)

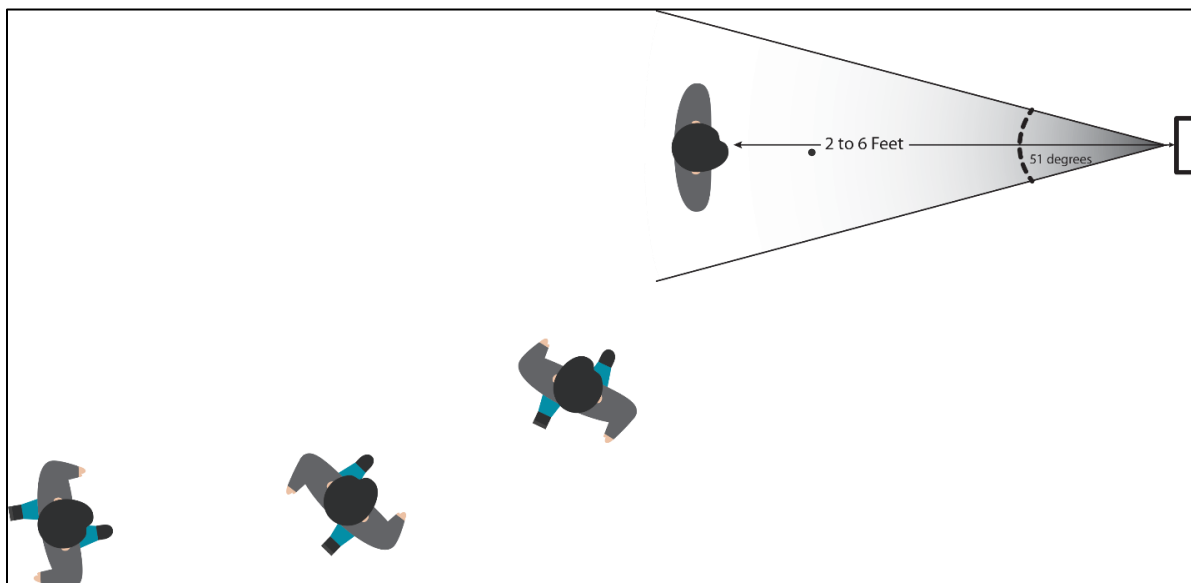


Figure 3. Camera Positioning (Top View)

Wall Mount

Mount the TempSense TS100 to a wall as follows (see Figure 5):

1. Secure the mounting plate (see Figure 4) to a flat surface using (*customer supplied*) hardware.

Use the four VESA mount holes to secure the mounting plate to the wall. No. 8 screws fit through the 0.190-inch threaded VESA mounting holes.

2. Secure the TS100 to the mounting plate using the four included #6-32 screws.

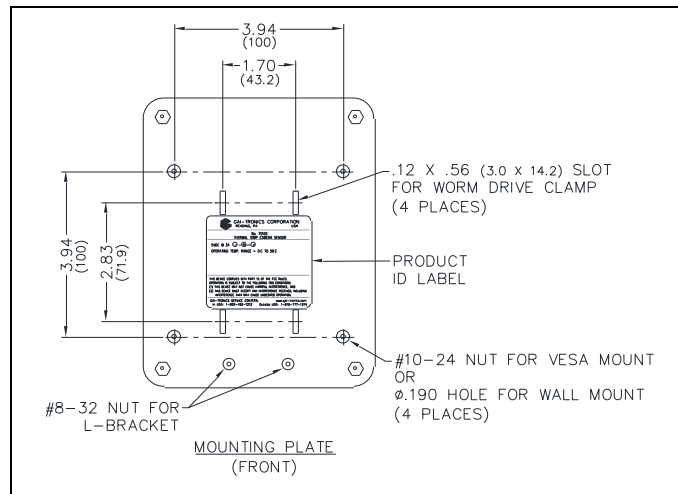


Figure 4. Mounting Plate Detail

Pole Mount

Mount the TempSense TS100 to a pole (see Figure 6) as follows:

1. Secure the TS100 mounting plate (see Figure 4) to a pole using (*customer supplied*) worm-drive clamps
2. Secure the TS100 to the mounting plate using the four included #6-32 screws.

VESA Mount

Attach a VESA (video electronics standards association) mount to the mounting plate with the included #10-24 screws and washers (see Figure 4).

NOTE: The TS100 includes four #10-24 × 0.38-inch long screws to attach a customer supplied VESA mount. Do **not** use any screws other than the included #10-24 screws to attach the VESA mount to the TS100's mounting plate.

Stand Mount

Mount the TS100 to a tripod or microphone stand using the included L-bracket (see Figure 7).

1. Secure the mounting plate to the TS100 using four #6-32 screws.

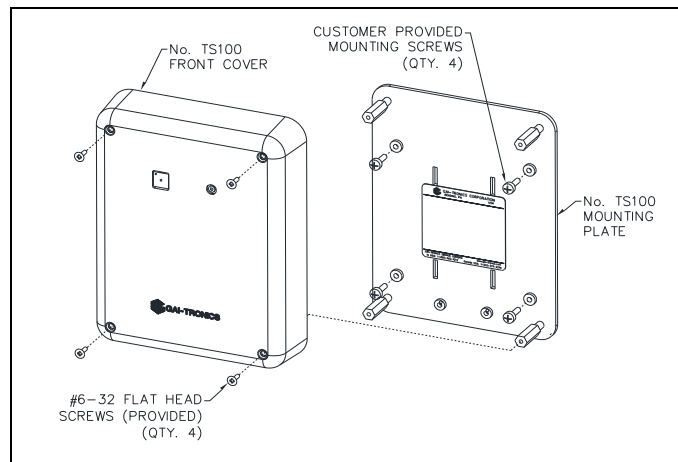


Figure 5. Wall-Mount Detail

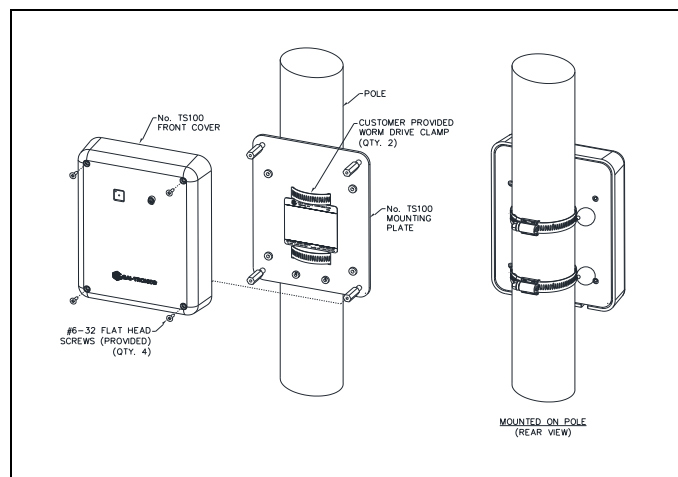


Figure 6. Pole-Mount Detail

- Secure the L-bracket to the mounting plate using the two included #8-32 flat head machine screws (see Figure 8).
- Secure the L-bracket to a microphone stand or tripod (see Figure 7).

Connections

HDMI Monitor

Plug the HDMI cable from a (*customer supplied*) HDMI monitor into the HDMI pigtail connector, on the left bottom side of the TS100.

USB Mouse

Plug a (*customer supplied*) USB mouse into the USB port pigtail, on the right bottom side of the TS100.

Power

Plug the included power supply into the power cord pigtail, on the left bottom side of the TS100.

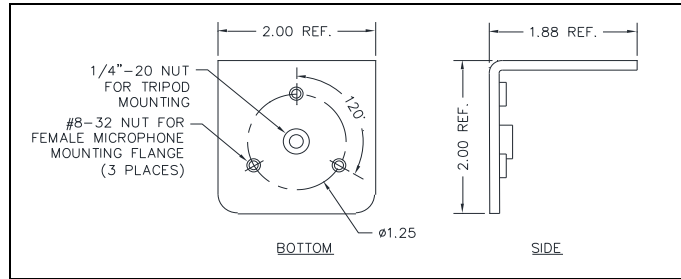


Figure 7. TS100 L-Bracket

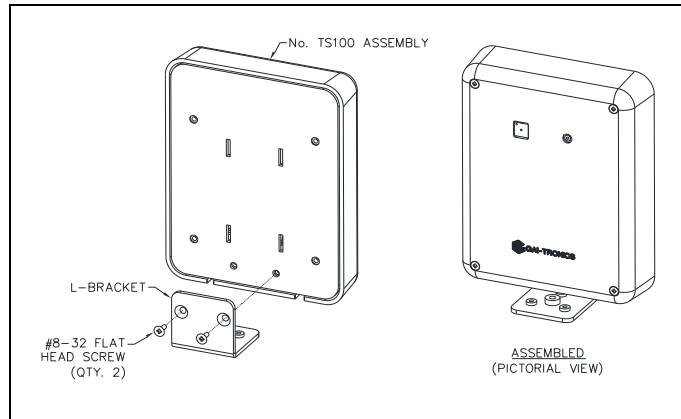


Figure 8. L-Bracket Attachment for Tripod/Microphone Stand Mounting

Operation

- Power on the attached HDMI monitor.
- Plug the TS100 power supply into a 120 V ac power outlet.

The TS100's IR sensor has a white LED that blinks slowly for 40 seconds, then changes to a fast blink.

NOTE: If the IR sensor LED does not flash, press the sensor into its socket using a soft cloth, then reboot the device.

- Allow the TS100 to come up to normal operating temperature before calibration (see the [Calibration](#) section) or operation (see the [Scan Subjects](#) section) (*about 10–30 minutes*).

Environment

Environmental considerations for the TS100 NCIT (non-contact infra-red thermometer) performance:

- Use the temperature scanning feature of the TS100 in a draft-free space that is out of direct sunlight and away from radiant heat sources.
- The optimal environment for the TS100 temperature sensor is between 60.8–104 °F (16–40 °C) with the relative humidity below 85 percent.
- Allow the TS100 to operate in the testing environment for 10–30 minutes to adjust to its environment before scanning personnel.

Subject Preparation

To obtain accurate skin temperatures, ensure that the subject has not:

- been wearing a hat, scarf, heavy clothing, etc.
- underwent recent physical exertion
- just entered from a much lower temperature environment
- recently used facial cleaning products
- engaged in any other act that may affect their skin temperature.

Calibration

1. Place an object of known temperature in the field of view of the TS100 at the same height and distance from where the TS100 will scan subjects.

The calibration object must be the hottest object in the FOV.

2. While watching the temperature of the object in the IR video feed (left side), press the setup button.
3. Slide the OFFSET slider to adjust the on-screen temperature until it displays the known temperature (see Figure 9).

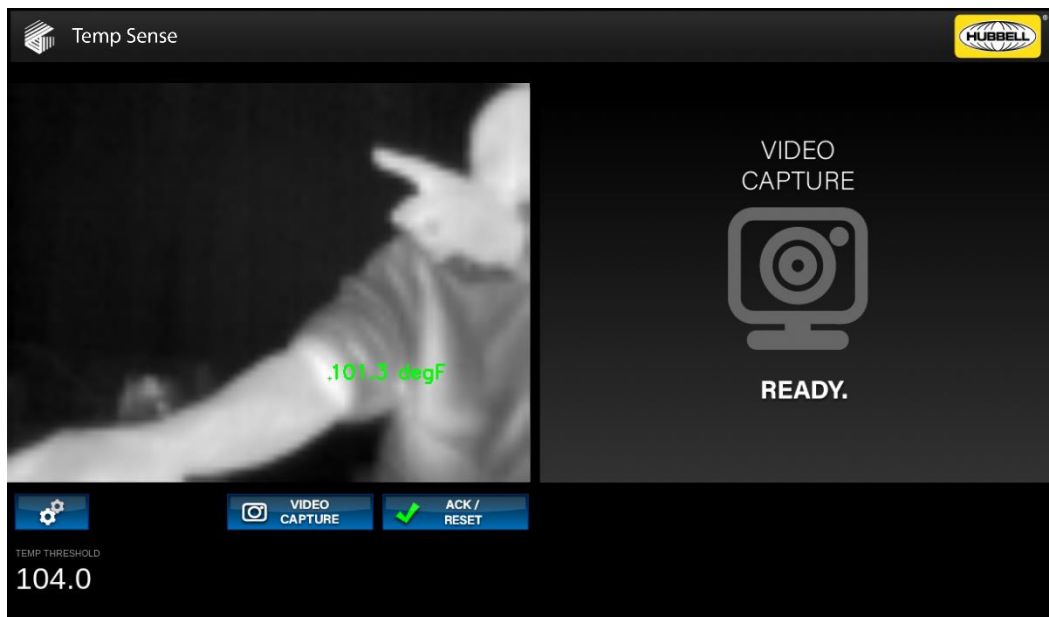


Figure 9. Temperature Superposition and Calibration

4. Select FAHRENHEIT or CELSIUS from the UNITS field on screen.

Selection of either scale reboots the TS100. The TS100 displays the temperature in the selected units after rebooting.

5. Adjust the TEMP THRESHOLD to the temperature for the TS100 to alert the operator and capture a still photo.

The TS100 captures both an IR and normal picture when the temperature exceeds the TEMP THRESHOLD value.

Scan Subjects

NOTE: Accuracy of the thermal imaging camera improves as the subject moves closer to the camera.

- The monitor displays live video for the thermal imaging camera under normal operation.
 - The TS100 superimposes the temperature of the hottest item in the FOV in the IR view (see [Figure 9](#)).
 - When a subject with a temperature exceeding the configured temperature enters the IR camera's FOV:
 - The TS100 captures and displays a still image of the IR and standard camera's picture.
 - OVER TEMPERATURE flashes on screen, notifying the operator of the overtemperature subject.
 - The TS100 displays the measured temperature of the subject, superimposed over the IR picture (*see note above*).
1. Press the ACK/RESET button to resume normal temperature scanning.
 2. Press the VIDEO CAPTURE button at any time to capture still pictures from the IR and visible light cameras. Press the ACK/RESET button to resume temperature scanning.

Specifications

Electrical

power supply 90–264 V ac, 50/60 Hz
 5.0 V dc, 15 W, 3.0 A (maximum)

Mechanical

Dimensions 7.26 H × 5.76 W × 1.5 D in (184.4 × 146.3 × 38.1 mm)
 Weight 2.0 lb (0.9 kg)

FLIR Camera

Horizontal FOV 51°
 Vertical FOV 38.25°

Environmental

Operating temperature range 32 °F to 122 °F (0 °C to 50 °C)

Approvals

Compliance to standard FCC 47 CFR Part 15B Class A

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Depending upon the wiring and features used on this device, additional precautions may be necessary not to cause harmful interference. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Warranty

Equipment. GAI-Tronics warrants for a period of one (1) year from the date of shipment, that any GAI-Tronics equipment supplied hereunder shall be free of defects in material and workmanship, shall comply with the then-current product specifications and product literature, and if applicable, shall be fit for the purpose specified in the agreed-upon quotation or proposal document. If (a) Seller's goods prove to be defective in workmanship and/or material under normal and proper usage, or unfit for the purpose specified and agreed upon, and (b) Buyer's claim is made within the warranty period set forth above, Buyer may return such goods to GAI-Tronics' nearest depot repair facility, freight prepaid, at which time they will be repaired or replaced, at Seller's option, without charge to Buyer. Repair or replacement shall be Buyer's sole and exclusive remedy. The warranty period on any repaired or replacement equipment shall be the greater of the ninety (90) day repair warranty or one (1) year from the date the original equipment was shipped. In no event shall GAI-Tronics warranty obligations with respect to equipment exceed 100% of the total cost of the equipment supplied hereunder. Buyer may also be entitled to the manufacturer's warranty on any third-party goods supplied by GAI-Tronics hereunder. The applicability of any such third-party warranty will be determined by GAI-Tronics.

Services. Any services GAI-Tronics provides hereunder, whether directly or through subcontractors, shall be performed in accordance with the standard of care with which such services are normally provided in the industry. If the services fail to meet the applicable industry standard, GAI-Tronics will re-perform such services at no cost to buyer to correct said deficiency to Company's satisfaction provided any and all issues are identified prior to the demobilization of the Contractor's personnel from the work site. Re-performance of services shall be Buyer's sole and exclusive remedy, and in no event shall GAI-Tronics warranty obligations with respect to services exceed 100% of the total cost of the services provided hereunder.

Warranty Periods. Every claim by Buyer alleging a defect in the goods and/or services provided hereunder shall be deemed waived unless such claim is made in writing within the applicable warranty periods as set forth above. Provided, however, that if the defect complained of is latent and not discoverable within the above warranty periods, every claim arising on account of such latent defect shall be deemed waived unless it is made in writing within a reasonable time after such latent defect is or should have been discovered by Buyer.

Limitations / Exclusions. The warranties herein shall not apply to, and GAI-Tronics shall not be responsible for, any damage to the goods or failure of the services supplied hereunder, to the extent caused by Buyer's neglect, failure to follow operational and maintenance procedures provided with the equipment, or the use of technicians not specifically authorized by GAI-Tronics to maintain or service the equipment. **THE WARRANTIES AND REMEDIES CONTAINED HEREIN ARE IN LIEU OF AND EXCLUDE ALL OTHER WARRANTIES AND REMEDIES, WHETHER EXPRESS OR IMPLIED BY OPERATION OF LAW OR OTHERWISE, INCLUDING ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.**

Return Policy

If the equipment requires service, contact your Regional Service Center for a return authorization number (RA#). Equipment should be shipped prepaid to GAI-Tronics with a return authorization number and a purchase order number. If the equipment is under warranty, repairs or a replacement will be made in accordance with the warranty policy set forth above. Please include a written explanation of all defects to assist our technicians in their troubleshooting efforts.

Call 800-492-1212 (inside the USA) or 610-777-1374 (outside the USA) for help identifying the Regional Service Center closest to you.