FeverWarn
by MachineSense®

Shown with optional stand.

It's All in the Fist

FeverWarn is so much more than a thermal scanner for temperature screening.

- Accurate infrared measurement that is FDA compliant.
- Non-contact, self-service thermal scanning.
- Provides outputs for triggering auxiliary doors or gates.
- Offers data compliance storage for legal protections.

FeverWarn
by MachineSense®

Self-service temperature screening • Available local or cloud storage • Available outputs for door and gate security

Checks all the right boxes for temperature screening.

FeverWarn measures the accurate temperature of individuals through their fist in one second or less, and, in an orderly manner allowing for the recommended six feet of social distancing. The National Institute of Health has named the fist as a viable option for conducting a temperature check.

- ✓ **FDA compliant thermal scanning**
- ✓ **Accuracy to +/-0.9°F**
- ✓ **Self-servicing, no human intervention required**
- ✓ **Data reporting to shield from future liability**
- ✓ **Auxiliary USB outputs for card readers, doors and gates**
- ✓ **Designed, built and shipped in the USA**
- ✓ **Reasonably priced**

PROUDLY MADE IN USA

Fists Forward

Self-service thermal scanning with reliable results in one second or less!

Simply place your first under the scanner (1-4 inches away) and less than a second later you will get either a red or green light or optional speaker models can announce the next steps.

The wrist and fist areas are ideal for infrared scanning because the arterial blood flow is close to the skin and has been studied by numerous health organizations and major universities for its effectiveness and accuracy. In addition, the wrist doesn't share the issues most commonly noted with forehead scanners of perspiration, hair, hats or makeup. Fist forward is perfect for easy temperature scanning and monitoring.

Types of Infrared Thermal Scanners

There's Lots of Ways to Measure Temperature...But Few Include All the Advantages of FeverWarn.

Accuracy. Reliability. Safety.

FeverWarn is ideally designed and positioned to offer advantages in self-service monitoring, proven accuracy, data storage and USB outputs all at a reasonable price and easy installation over alternative thermal scanners.

$

Forehead Thermal Scanner

Most Infrared forehead temperature guns, although accurate and affordable, require human interaction and do not allow for proper social distancing. Sun, makeup, and varying heights also add to the difficulties of measuring the temperature from the forehead.

Good
- ✓ Uses same infrared technology as FeverWarn. Compromised by forehead perspiration, hair, makeup and head coverings not found on wrist measurements
- ↻ Accuracy depends on perspiration, makeup, hair and positioning distance

Bad
- ✗ Head covering would need to be removed
- ✗ Human intervention required
- ✗ No data outputs for provable future compliance defense
- ✗ No data outputs for auxiliary devices

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Shown above with optional stand

FeverWarn Infrared Fist Artery Thermal Scanner

FeverWarn uses the same infrared sensors as other thermal scanners, but has been specifically designed for fist/wrist artery temperature scanning, which is not subject to high perspiration, significant hair, head coverings or make-up.

Good
- ✓ Manufactured in the USA
- ✓ Consistent accuracy not compromised by forehead perspiration, make-up, hair and head coverings
- ✓ Sensor location is not compromised by UV sunlight
- ✓ Offers either local or cloud data storage to preserve compliance with monitoring guidelines
- ✓ No additional intervention or supervision required as with handheld temperature guns
- ✓ Offers output signals for doors and gates as well as integration with employee card systems
- ✓ Convenient stands and shrouds available to assist installation

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Camera Based Thermal Scanner

Thermal scanning cameras, while accurate, are expensive, and in some cases where facial recognition is used can cause privacy concerns.

Good
- ✓ No human intervention required
- ✓ Some models provide data outputs for future compliance defense
- ✓ Some models provide data outputs for auxiliary devices
- ✓ Most use similar infrared sensor principle as FeverWarn
- ↻ Accuracy depends on exposure to UV sunlight, makeup, facial coverings and distance and resolution of camera
- ↻ Not recommended for crowd scanning unless very high resolution camera, should primarily be used for individual scanning as with FeverWarn.

Bad
- ✗ Typically require separately sold computer interface not included
- ✗ Privacy concerns

The Science of Fist-Forward Temperature Scanning

University studies report the fist/wrist as one of the most reliable areas for thermal temperature screening

Many people are familiar with infrared (IR) skin temperature devices being used to monitor forehead skin temperature. But due to different heights, heavy perspiration of the forehead area, hair, makeup, and other facial coverings, the readings can be compromised and often require secondary scans. In fact, thermal scans can be taken in many places on the human body, especially those regions where arterial blood flow is present. Still, some areas, including the fist, are best to correlate with mean body temperature (MBT), which is used to measure fever.

Another reason the fist/wrist area was selected as an optimal temperature scanning area is because people can easily manipulate their arm/hand and scan themselves. In contrast, people of different heights would require multiple scanners to achieve the same results with a forehead scanner. Besides, research and even warnings by manufacturers of forehead thermal scanners have established that their readings can be compromised by forehead perspiration, makeup, hair, and other coverings.

Camera thermal scanning systems are also available on the market. Still, they are expensive, and a high-resolution camera is necessary to direct the image to the correct facial areas. Also, infrared cameras cannot be used outdoors due to the interference of the sunlight's infrared rays which, will impact the results.

In all cases, skin body temperature and core body temperature will differ by one to two degrees, but they do correlate well to detect fevers. Many noted universities studies have established that although different skin temperatures (hands, legs, feet, stomach, chest, and forehead) may not be the same, they still correlate well with mean body temperature (MBT). These same studies have shown that the fist/wrist area is one of the most reliable and steady skin thermal scan areas is because it is less affected by thermal activity.

Thermal scanners work best used in high blood flow areas. These areas typically include the forehead, upper and lower arm, back of hand, chest, stomach, thigh, anterior calf, posterior calf, and the foot instep.

Most high blood flow areas are covered during the typical presentation of a person. The forehead and the back of the hand/wrist or fist are the best areas to measure skin temperature correlated to mean body temperature. The wrist/fist area is an ideal thermal scanning area due to a lack of perspiration, head coverings, makeup, and hair.

# Make a Fist, See for Yourself
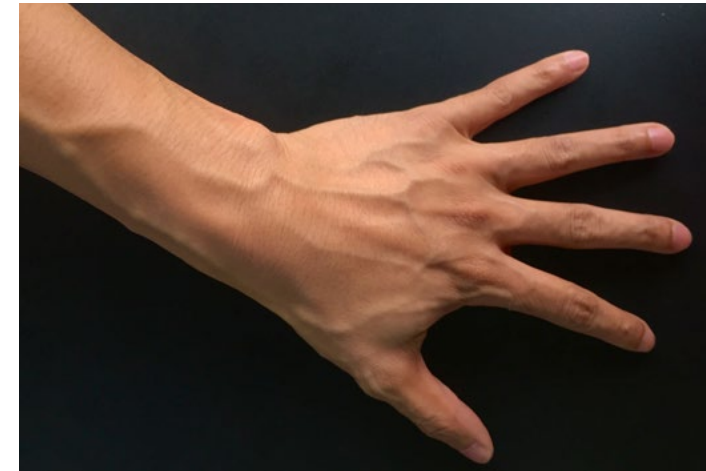
Increased body temperatures spreads to the skin via blood circulation. The skin surface of the hand, due to exposed high arterial flow, responds easily and steadily to changes in mean body temperature. Results are repeatable and steady with +/- 0.5 degrees.

Try it yourself. Make a fist. You can clearly see the arteries in the hand leading to the fingers. The closeness of these arteries to the skin wall makes this area ideal for self-scanning and produces excellent results across a vast majority of the population.

Why the Wrist Beats the Head in Temperature Scanning

- Virtually no perspiration vs. heavy perspiration of forehead which interferes with thermal scanning
- Reduced hair on wrist/fist vs. possible hair interfering with forehead thermal scanners
- No makeup on wrist/fist vs. eye and skin makeup on head thermal scanning
- No interference by hats or face covering, which is commonplace with head thermal scanning
- Easy self-servicing without danger of personnel exposure prior to results

Fist vs. Forehead Thermal Scanner Correlation

98.5
98
97.5
97
96.5
96
95.5
°F

— Forehead temperature scan   — FeverWarn fist scan
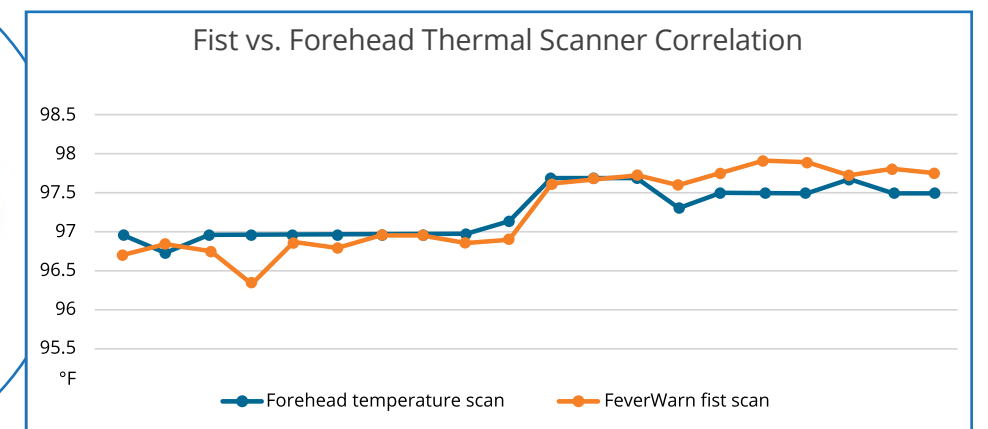
The back of the hand has ideal arterial blood flow, which accurately correlates to mean body temperature. Research confirms the back of the hand has one of the most steady readings, which is ideal for thermal scanning.

Can You Afford Not to...
Protect Your Employees, Customers and Students

The Centers for Disease Control and Prevention (CDC) has recommended that businesses not only protect their employees but also monitor employee health regularly. Legal experts assert that companies that fail to maintain minimum standards, including health monitoring and screening, could be later subject to liability or workman's compensation issues if employees, visitors, or customers contract the virus.

A fever is the most common coronavirus symptom, affecting up to 88 percent of those who have the ailment. This telling symptom of possible COVID-19 virus infection can be easily monitored with FeverWarn by conducting temperature screenings to alert potentially sick employees or visitors and keep them from exposing others.

FeverWarn's Advanced Infrared Temperature Screening System offers much more than temperature scanning. FeverWarn's reporting software is your future expert witness, providing compliance reports to help you avoid liability issues. The system also easily integrates with auxiliary devices such as automatic doors, gates, and employee attendance systems.

Protect Your Employees

One of your businesses' most valuable assets is your healthy employees. Knowing they are coming to work in an environment that is as safe as possible takes away stress. It builds confidence allowing them to perform their jobs in safer surroundings without health-concern distractions.

Protect Your Customers

You wouldn't have a business without your valuable customers. Many customers will appreciate the temperature checks at the door and any extra steps to keep them safe. Customers are anxious to get back to their routines of working out at the gym, haircuts, manicures, eating at restaurants, etc. Help your customers feel safe in getting back to their daily lives, and it will surely be appreciated.

Protect Your Students

FeverWarn can be installed on buses as well front lobby or classroom entrances or other locations to protect students, faculty and drivers. Plus, the onboard or cloud storage options help provide ongoing evidence of compliance.

So Much More than a Thermal Temperature Scanner...

FeverWarn is Your Expert Witness for Ongoing Compliance Reporting

Outputs for Integration with Doors, Gates and Employee Tracking Systems

With the CDC's recommendations to monitor employee health and take measures to protect your employees. Compliance data backups and full reporting are an important part of avoiding future workman's compensation or liability claims.

- Legal experts claim that following all CDC recommendations and being able to prove such will help insulate you against legal claims.
- Most handheld thermal scanners and even many thermal scanning systems have no way of retaining data or generating visual reporting.

FeverWarn Thermal Scanner Data Storage Options

- **100 Series:** Local on board storage with 16GB storage for up to 20 million scans. Can be exported into CSV format for manipulation. Phone visualization for daily scans.

- **200 Series:** Local and cloud storage available through Microsoft Azure. Visualization available for up to 6 months of data. CSV reports available for download. Also includes microservices for email and text alerts.

Models 200 and 300 FeverWarn Thermal Scanning Systems include a built-in serial relay controller which can be used to send outputs to auxiliary devices, including gates and security doors. The relay controller supports RS232/485 Modbus protocols and Ethernet controllers.

Integration with Employee Card Readers

An RFID smart card reader can be plugged into the FeverWarn USB adapter enabling communications with the FeverWarn system.

Microservices can be used to send alerts, emails, and other data to devices on the network.

Employee Card Reader

Built-in Serial Relay Controller

USB Adapter Connected to 110/220V Electrical Outlet

USB Cable

USB Cable

Data Flow is Bi-Directional
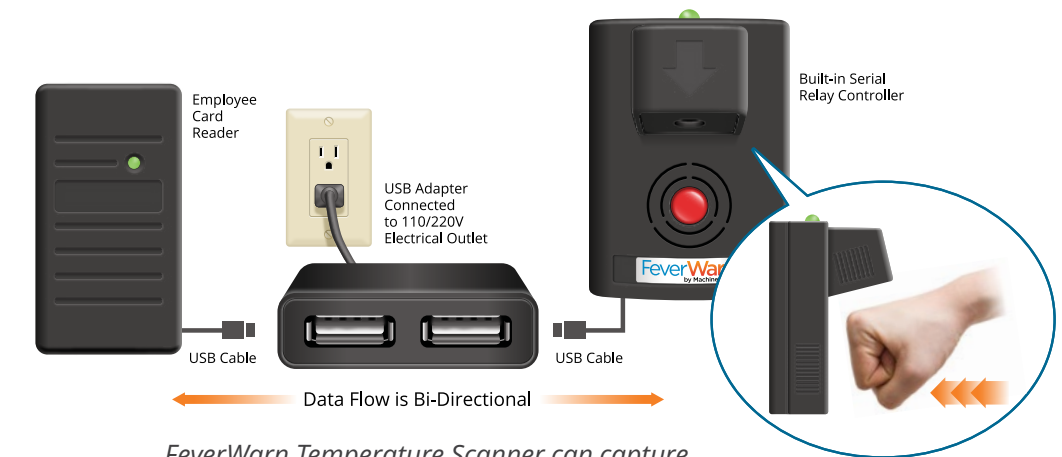
FeverWarn Temperature Scanner can capture the ID from the RFID smart card and link it to identify the individual being scanned.

HISTOGRAM   CALIBRATION LOGS   CHECK 24 HOUR LOGS

Select Gate	Temperature Unit	Fever Threshold		Time Zone	Persons Scanned
Elementary School—Lobby Door	Fahrenheit	99	SAVE	EST	Last 10 Persons

Predicted Temperature
Fist   SAVE

TEMPERATURE PLOT   LIABILITY DOWNLOADS

Thermal Signature for last 10 Scans

95

Integration with Automatic Door/Gate Systems

Security Doors

Built-in Serial Relay Controller

USB Adapter Connected to 110/220V Electrical Outlet

USB Cable

USB Cable

Data Flow is Bi-Directional

A smart lock for commercial doors could be plugged into the FeverWarn USB adapter enabling communication with the FeverWarn Thermal Scanner to unlock the door.

Feverwarn offers legal liability coverage, including:
- *Storage of scanned temperature data*
- *Storage of calibration logs confirming valid calibration*
- *All data from visitor waiver form (Users can use FeverWarn visitor waiver mobile app where all stored data can be downloaded from the cloud or local storage.)*

FeverWarn offers either local storage (for up to 20 million scans) which is downloadable to a smart device for CSV file handling or cloud storage depending on model specified.
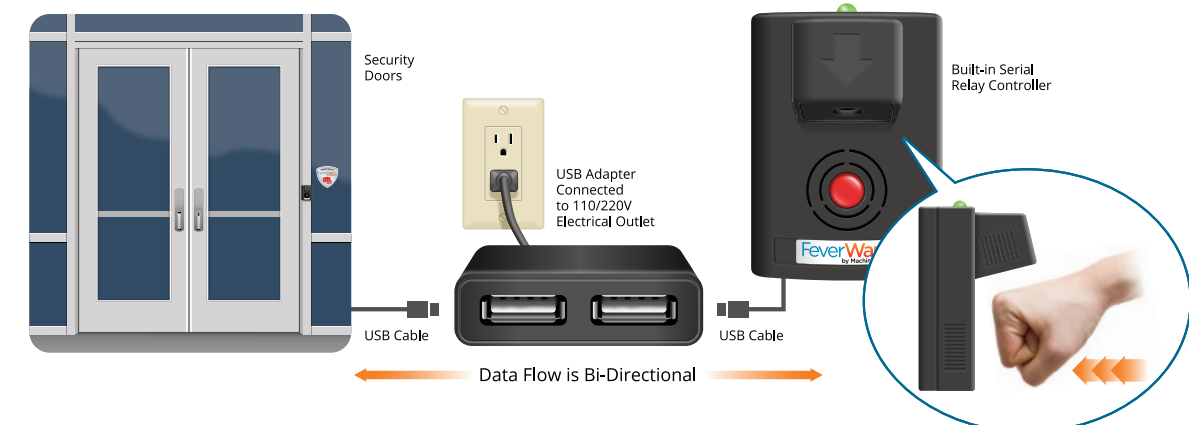
Using a serial relay controller (provided in device), we can input via USB to any other on-premise device such as security doors. This supports RS232/485 Modbus protocols and Ethernet controllers.

Proven. Reliable. Safe. Secure.

Which FeverWarn Thermal Scanner is right for me?

Find the perfect model for your installation.

Local storage or cloud storage for results
- LOCAL → All Models
- CLOUD → Models 200, 230

Auxiliary USB outputs for gate/door
- YES → Models 120, 130, 200, 230
- NO → Model 100

Email/text alerts
- YES → Models 200, 230
- NO → Models 100, 120, 130

Speaker for voice announcement
- YES → Models 130, 230
- NO → Models 100, 120, 200

Optional stands (height)
- 40" → Model FW-FS-40
- 30" → Model FW-FS-30 (elementary school size)

Optional outdoor hood
- Model FW-CVR

FeverWarn Thermal Scanner Models

Which FeverWarn is right for me?

MODEL	FW-100	FW-120	FW-130	FW-200	FW-230
LED Go/NoGo	✓	✓	✓	✓	✓
Mobile app to calibrate and view last 24 hours of data	✓	✓	✓	✓	✓
Visitor waiver form for visiting guest	✓	✓	✓	✓	✓
Local storage (20M scans)	✓	✓	✓	✓	✓
On field thermal scanner calibration	✓	✓	✓	✓	✓
External calibrator	✓	✓	✓	✓	✓
Optional outdoor hood (Model FW-CVR)	✓	✓	✓	✓	✓
Optional stands (Model FW-FS-40) (Model FW-FS-30)	✓	✓	✓	✓	✓
Update via mobile app (cloud or mobile)	✓	✓	✓	✓	✓
Relay outputs		✓	✓	✓	✓
Auxiliary USB outputs for gate/door from thermal scanner		✓	✓	✓	✓
Voice announcement			✓		✓
Manage multiple locations/gate				✓	✓
Two-years of cloud data				✓	✓
WiFi Dongle				✓	✓
Email/text alerts				✓	✓
Automatic update of software				✓	✓
Rest API to pull cloud data				✓	✓

FeverWarn
by MachineSense®

- Sturdy, yet portable one-piece design
- Cable channel for tidy cord keeping
- Easy installation of all FeverWarn models
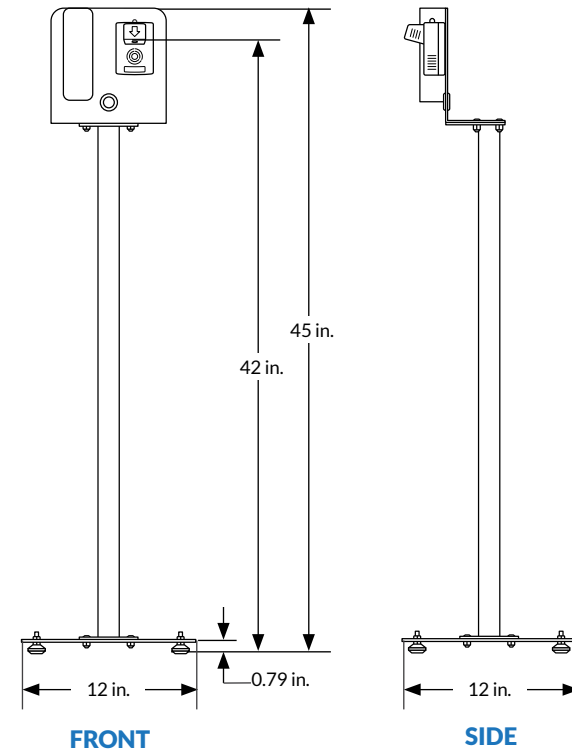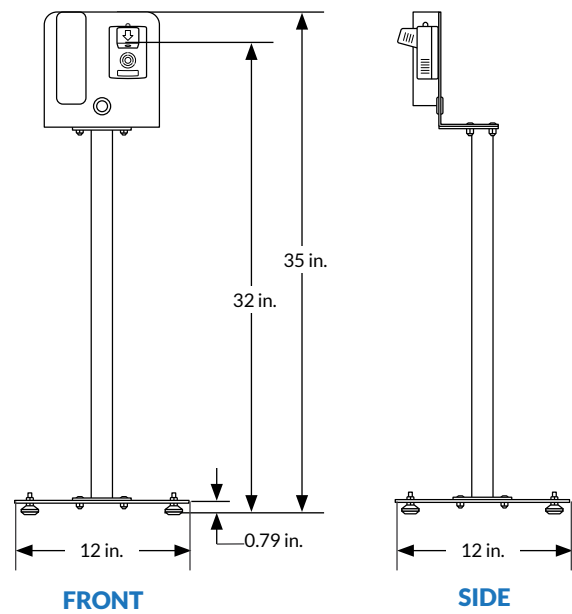- Two models, 32- and 42-inch to accommodate varying heights

SPECIFICATIONS

MODEL	FW-FS-32	FW-FS-42
Dimensions height x width x depth (overall)	35 in. x 12 in. x 12 in. (88.9 cm x 30.48 cm x 30.48 cm)	45 in. x 12 in. X 12 in. (114.3 cm x 30.48 cm x 30.48 cm)
Scan height	32	42
Weight	9 lb.	10 lb.
Price	$189.00	$199.00

DIMENSIONS

FW-FS-32

35 in.
32 in.
12 in.
0.79 in.
12 in.
FRONT   **SIDE**

FW-FS-42

45 in.
42 in.
12 in.
0.79 in.
12 in.
FRONT   **SIDE**
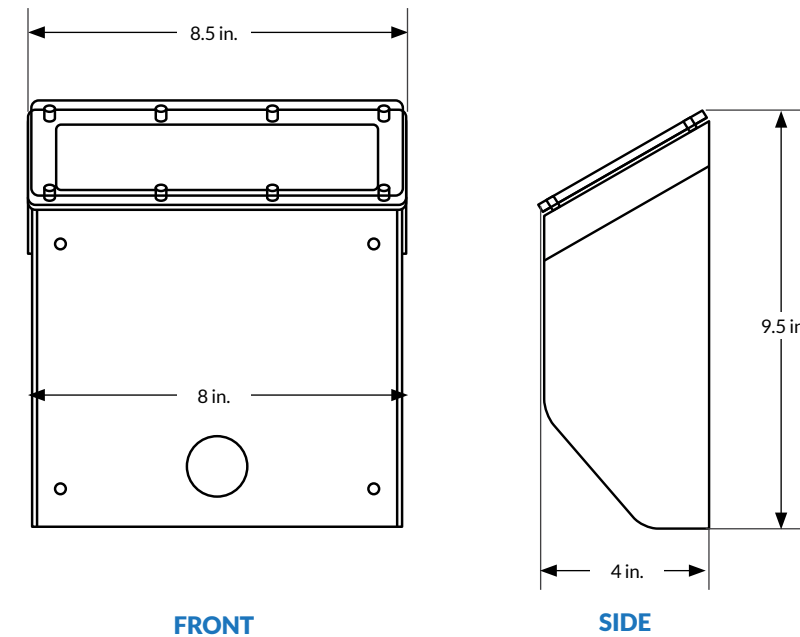
FeverWarn
by MachineSense®

- Protects FeverWarn units from inclement weather conditions
- Cable channel for tidy cord keeping
- Readily connects to FeverWarn floor stands

SPECIFICATIONS

MODEL	FW-CVR
Dimensions height x width x depth (overall)	9.5 in. x 8.5 in. x 4 in. (24.13 cm x 21.59 cm x 10.16 cm)
Weight	3 lb.
Price	$125.00

DIMENSIONS

8.5 in.
8 in.
9.5 in.
4 in.
FRONT   **SIDE**

Hardware Specifications (same for all models)

MODEL	FW-100	FW-120	FW-130	FW-200	FW-230
Mechanical					
Weight	7.0 oz (0.2 kg)				
Dimensions length x width x depth (overall)	3.7 in x 2.8 in x 3.2 in (94 mm x 71 mm x 81 mm)				
Sensor housing material	Plastic				
Enclosure rating	IP64, IP65 optional				
Mounting	Wall mounting (default) Outdoor hood/Stand - Optional				
Environmental					
Operating temperature	0 - 100°F (0 - 36°C)				
Ambient temperature	23°F to 113°F (-5° to 36°C)				
Hazardous condition	Class-1 Div-2				
Data accuracy/storage/visualization					
Human body temperature range	95°F to 105°F (35°C to 41°C)				
Resolution	0.25°F or 0.15°C				
Accuracy	+/- 0.9°F +/- 0.5°C				
Sampling rate (configurable) (/sec)	3/1000				
Historical data log	10 years (using USB pluggable PSSD)			Up to 2 years (Cloud storage)	
Data visualization	Mobile app (last 24 hrs.)			Web app Complete cloud storage data) Mobile app (last 24 hrs.)	
Indication	RGB LED (Go / No Go)				
Others					
Calibration	Auto / Manual (using mobile app) (Customer choice - once a month is recommended)				
Software update	Using mobile app			Using web app (auto) Using mobile app (manual)	
Speaker	Not available		Voice command to guide people	Not available	Voice command to guide people