BACK TO WORK SOLUTIONS DEMYSTIFIED

Going Back to Work and School Safely

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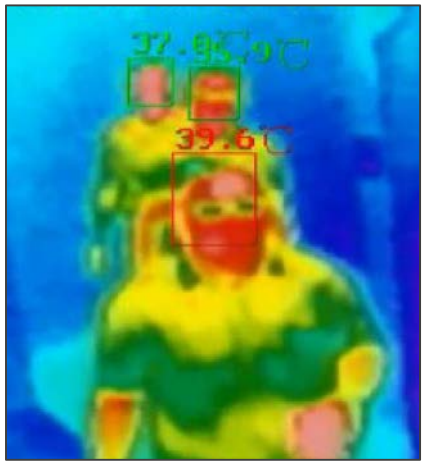
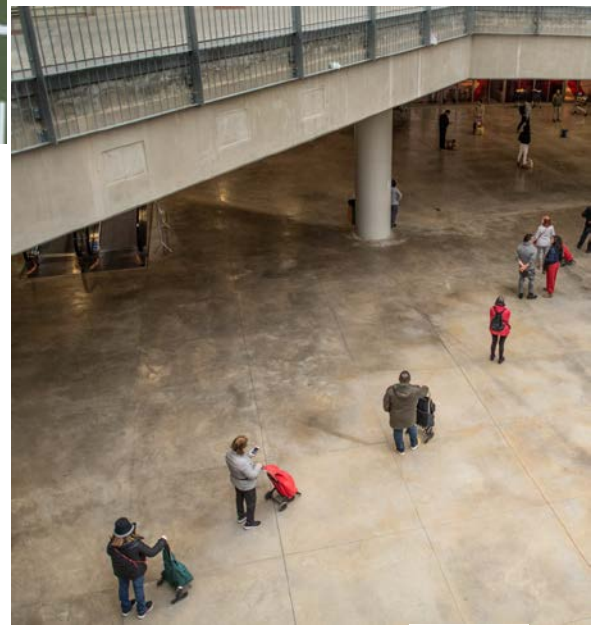
ORGANIZATION IMPERATIVES FOR "BACK TO WORK/SCHOOL"

Organizations are Looking for Ways to Return to Work/School Safely

- Leaders want to do all that they can
- Need to Reduce Exposure to the Virus
- Boosts Coworker & Customer Confidence
- Pressure to meet all local, state, and national guidelines

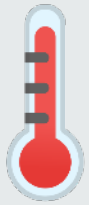




THE NEW NORMAL?

Employers, Schools, Cities, and other organizations need new strategies for getting back to work and school safely

- Reduce risk of exposure and transmission of COVID-19
- Boost confidence in organization's health and safety
- Pressure to meet all local, state, and national guidelines



The CDC recommends[1] that Temperature Checks be performed on all individuals upon arrival before entry.

[1] CDC: Interim Guidance for Businesses and Employers Responding to Coronavirus Disease 2019 (COVID-19), May 2020

ABOUT TEMPERATURE SCREENING

The only tool that can accurately detect fever during temperature checks is a medical-grade thermometer.

This process may be too slow for screening a large volume of people at peak times.

Thermal cameras can increase the screening rate, but cannot be used alone to diagnose fever.

Thermographic devices measure estimated skin temperature at an accuracy of up to ±0.5°F under ideal conditions.

Thermal Screening should be combined with other strategies for keeping people safe.

Manage occupancy levels, maintain social distancing, and continue to work from home where appropriate.

ABOUT FDA REGULATIONS

The FDA regulates medical devices if they are designed, marketed, or used to help diagnose illnesses (such as fever).

The FDA greenlights thermal cameras in two ways:

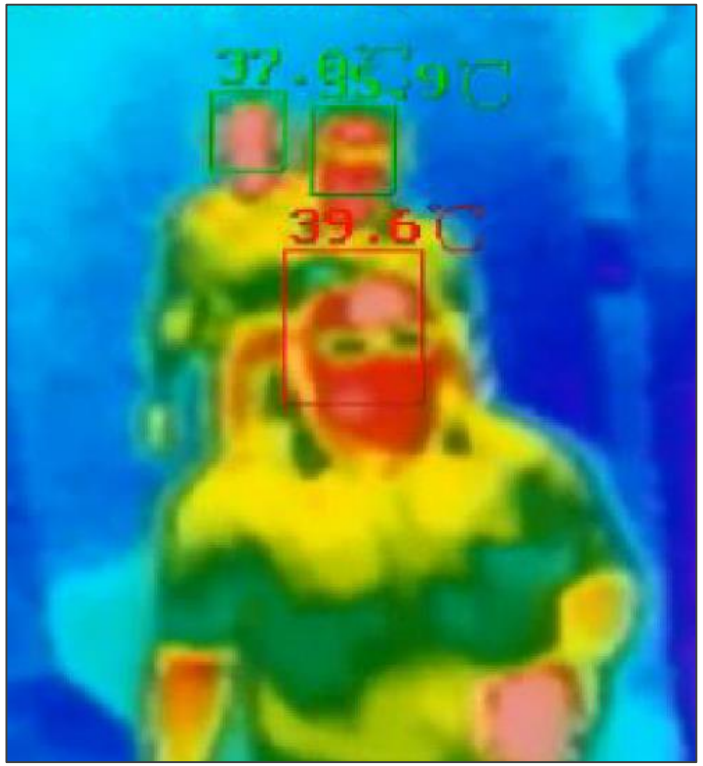
- **510k Clearance** – Required if the thermal camera is to be used when paired with an approved medical device, i.e. body thermometer, to confirm a fever
- **Pre-market Approval** – Required for any device that is intended to be the sole tool for diagnosing a fever/illness (much more stringent)

In April 2020, the FDA issued a temporary waiver[1] for these requirements for the duration of the COVID-19 pandemic. It is currently unclear if or when enforcement will resume.

[1] FDA: Enforcement Policy for Telethermographic Systems During the Coronavirus Disease 2019 (COVID-19) Public Health Emergency, April 2020

SCALING UP THE TEMPERATURE CHECK PROCESS

FOR VOLUME



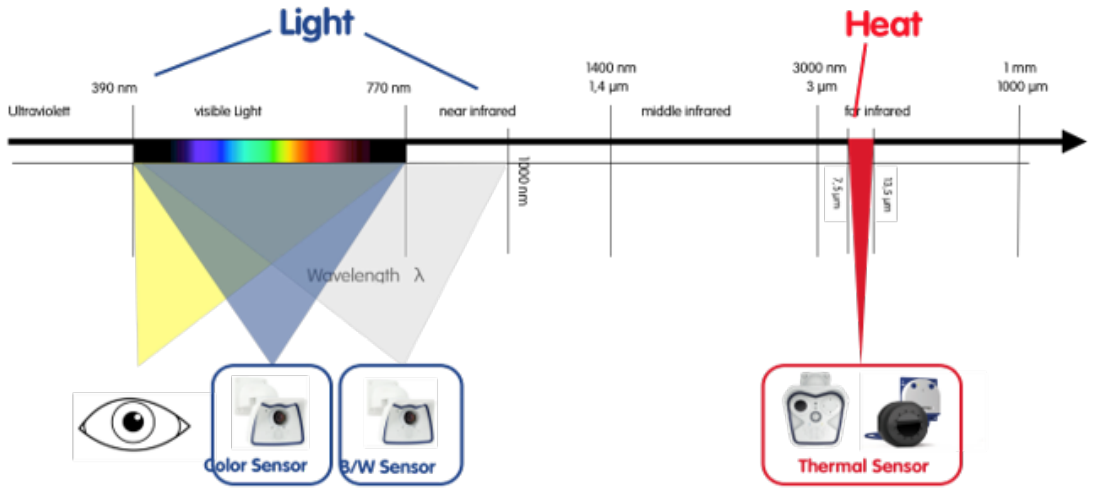
Thermographic Cameras

FOR ACCURACY

Medical Grade Thermometers

HOW THERMAL CAMERAS WORK

Thermal cameras detect the infrared radiation *emitted* by the surface of an object.



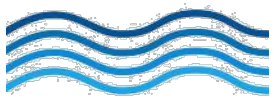
Many thermal camera solutions include both thermal and optical sensors.

WHEN USED FOR BODY TEMPERATURE SCREENING:

- Thermal camera sensors only measure an estimated skin surface temperature
- Normal skin surface temperature is typically several degrees lower than internal body temperature
- Every manufacturer uses an algorithm to compensate for this offset to provide an estimated body temperature result
- The accuracy and precision of thermal cameras vary by sensor type and manufacturer
- Calibrated correctly, can identify someone with an elevated temperature above the norm

FACTORS THAT AFFECT THERMAL READINGS

Ambient Air Temperature Fluctuations

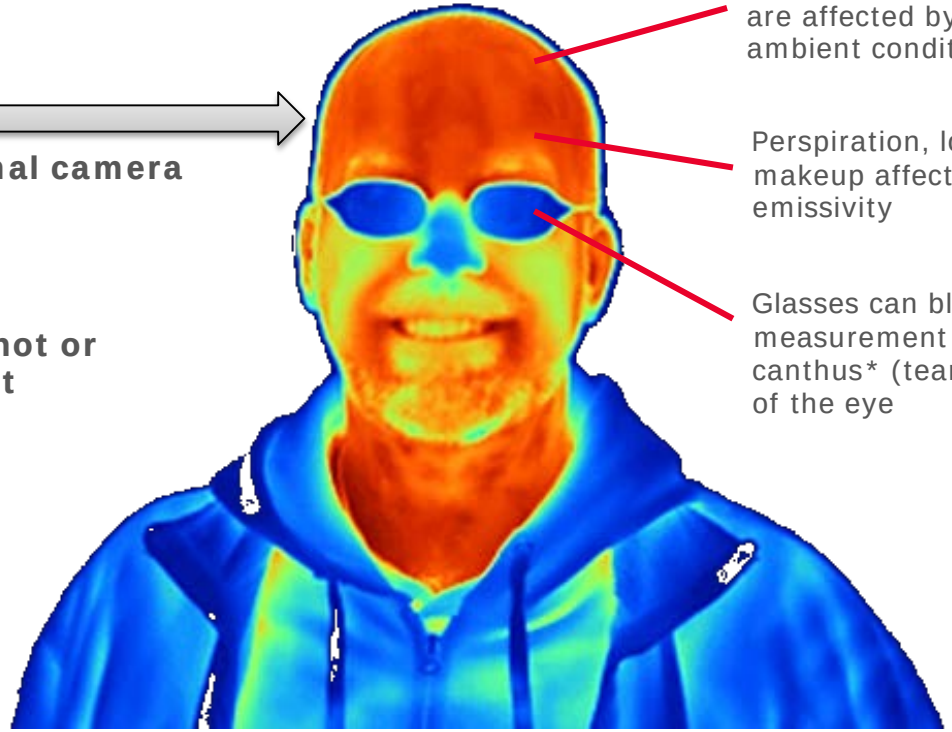


Subject's distance from thermal camera

Coming in from hot or cold environment

Strenuous Activity

Skin Temperature ≠ Core Body Temperature



Thin skin layers are affected by ambient conditions

Perspiration, lotions, & makeup affect emissivity

Glasses can block measurement of inner canthus* (tear duct) of the eye

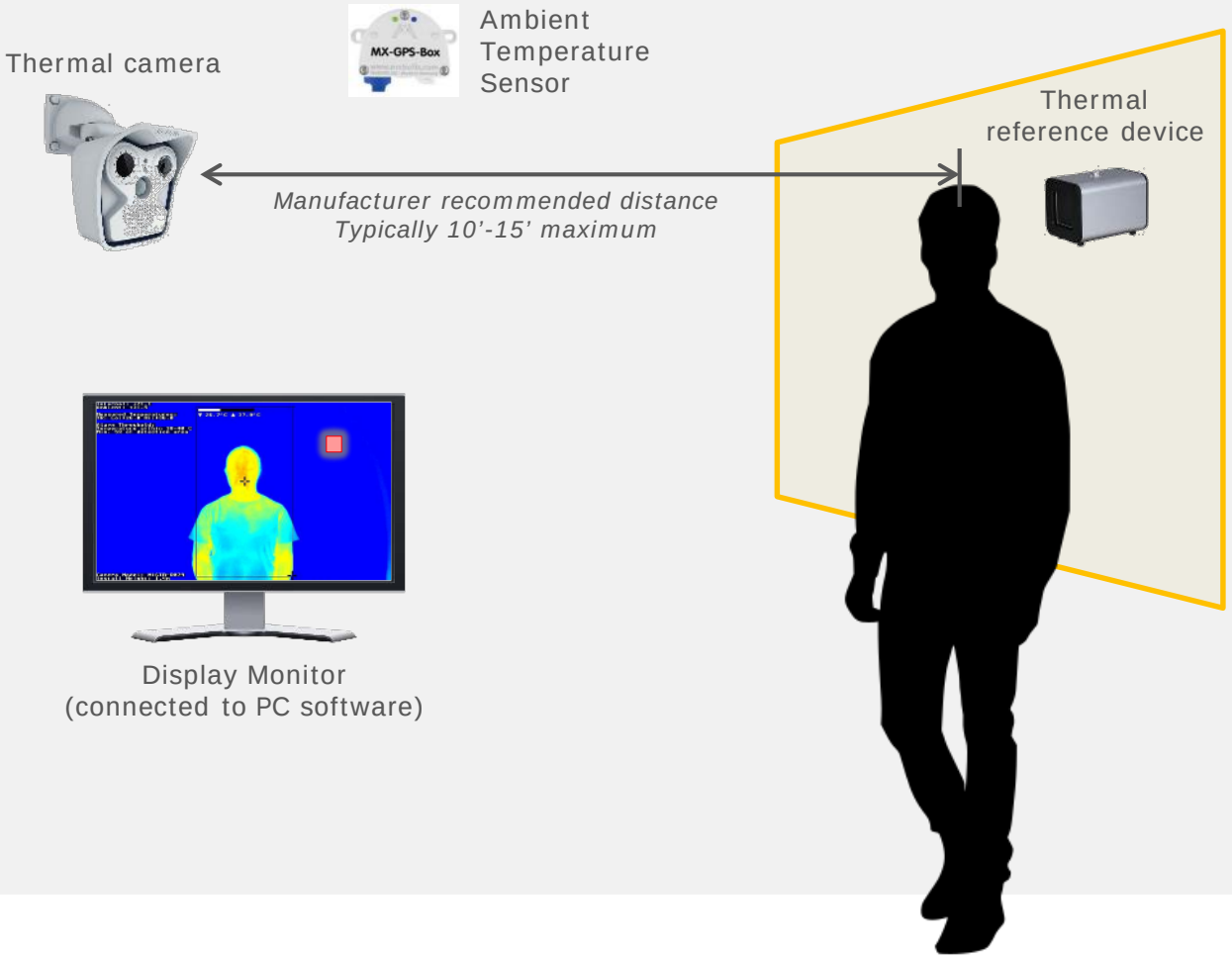
* Most accurate area of face to measure temperature

COMPARING TEMPERATURE SCAN TYPES

	DEVICE TYPE	METHOD	DISTANCE	RATE	THROUGHPUT	ACCURACY	PRICE RANGE
	**Non-contact Infrared Thermometer**	Manual	Very close *1-2 inches*	Slow *5-10 persons per min*	1 person at a time	Best[1] (medical grade)	Low *$250 - $400*
	**Hand-held Thermographic Camera**	Manual	Close *2-6 feet*	Faster *10-12 persons per min*	1 person at a time	Good *±0.9°F* *Typically measures hottest spot found in field of view.*	Medium *$1,000 - $3,000*
	**Kiosk with Thermal Scanner**	Automated[2] (self-service)	Close *1-3 feet*	Faster *10-12 persons per min*	1 person at a time	Good *±0.9°F* *Typically measures hottest spot found in field of view.*	Medium *$2,500 - $5,000*
	**Mounted* Thermographic Camera** ** Wall, ceiling, tripod or cart mounted*	Automated[2]	Distant *5-20 feet*	Fastest *20-30 persons per min*	1 person at a time[3]	Better[4] *±0.5°F* *Some can target face, forehead or inner canthus areas.*	Higher *$5,000 - $20,000*

[1] Only true body temperature measurement
[2] Requires someone to monitor/attend screening process
[3] Many products claim multiple persons, FDA guidance is to scan one at a time
[4] Supports thermal reference device and/or ambient temp sensors

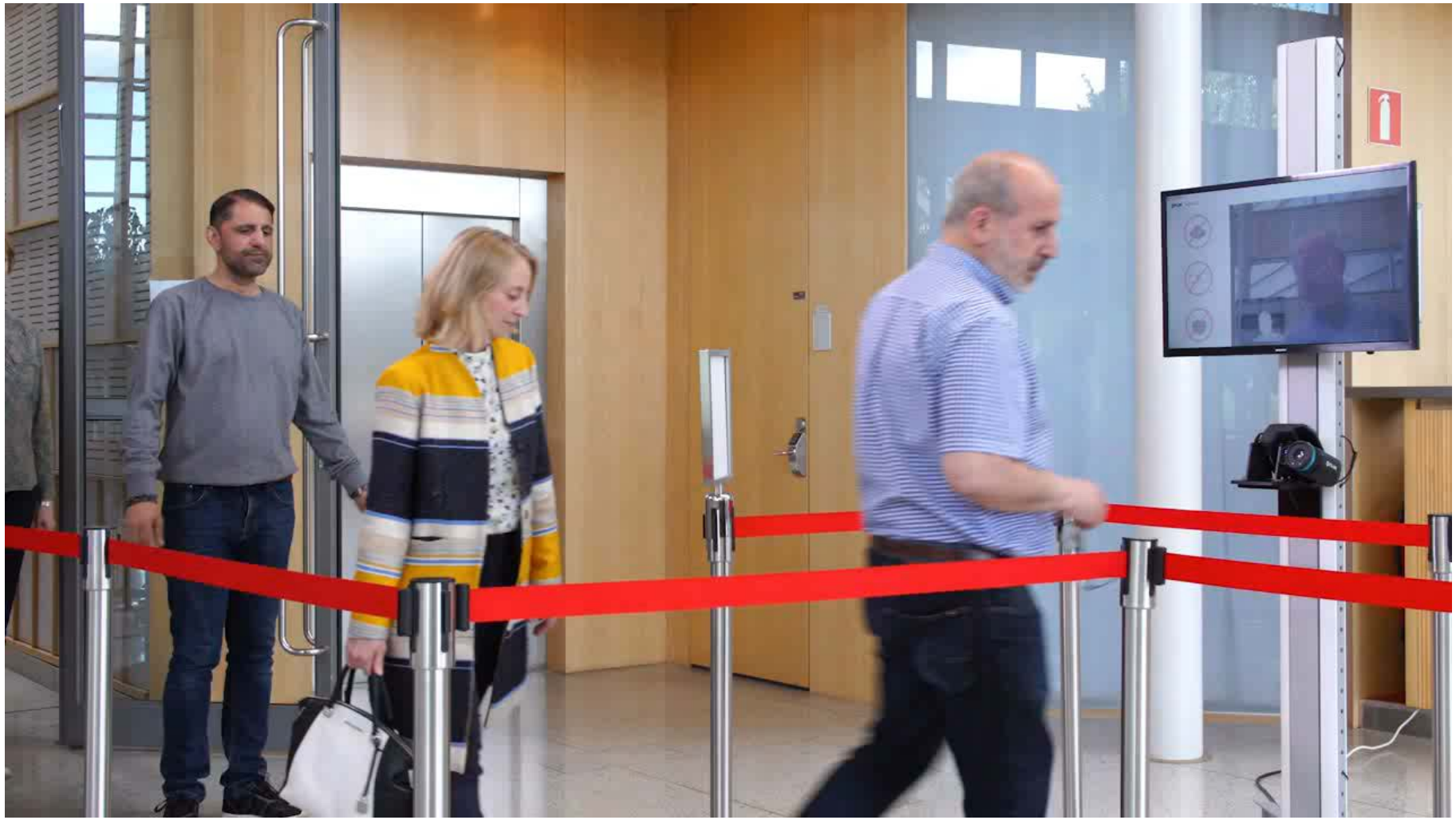
THERMOGRAPHIC CAMERA SYSTEMS



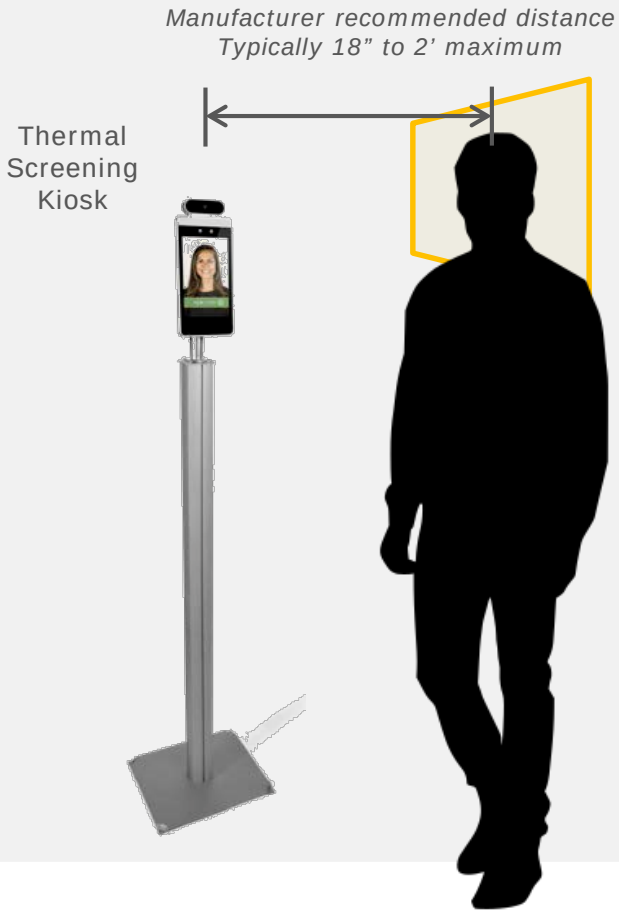
FOR BEST RESULTS:

- Requires a stable indoor environment (consistent temperature, no nearby HVAC vents, doors or windows)
- Individuals must acclimate to indoor temperatures (3-5 min) and remove head coverings, glasses, etc. before scanning
- Use Thermal Reference Device and/or Ambient Temperature Sensor if recommended by manufacturer for highest accuracy
- Both cameras and reference devices may require regular calibration (daily to weekly)
- Measurements must be performed at manufacturer recommended distances
- Scan one person at a time

EXAMPLE: Mounted Thermographic Camera Solution



THERMAL SCREENING KIOSKS



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ADDITIONAL FEATURES:

- Facial recognition and biometric access control integration
- Time and attendance tracking
- Visitor management

EXAMPLE: Thermal Screening Kiosk

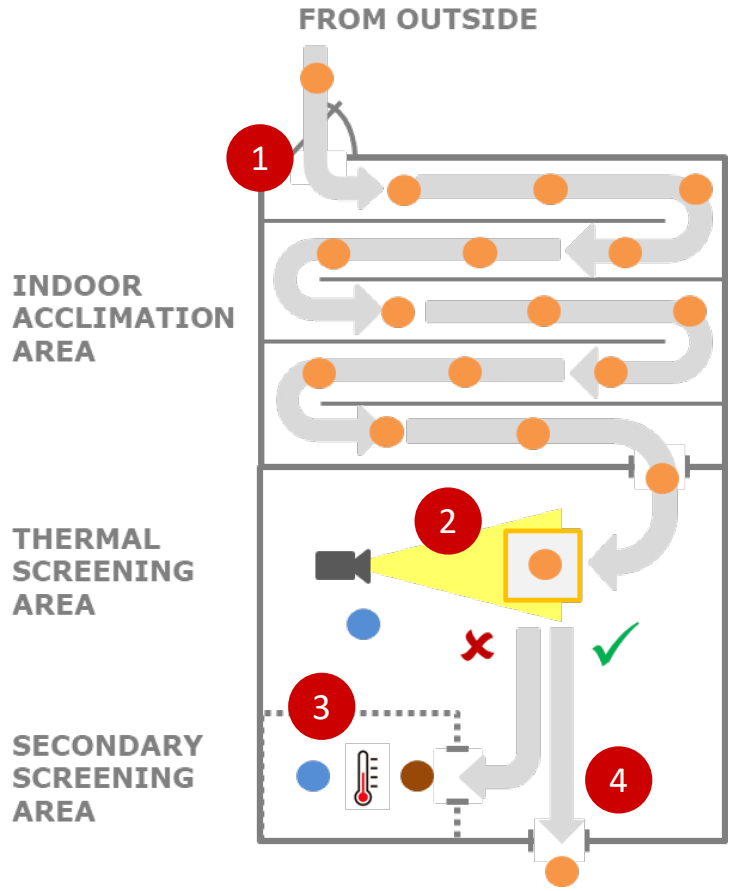
EXAMPLE THERMAL SCREENING PROCESS

1. For accurate readings, individuals should be allowed to acclimate to indoor temperatures before thermal screening. Queuing should be configured to maintain social distancing.

2. Individuals step up to thermal camera screening area, one at a time optimally. Employer has someone monitoring process.

3. Persons who register an elevated temperature by thermal camera are pulled aside for secondary screening by medical-grade thermometer to confirm fever.

4. Individuals that register “normal” temperature proceed into building.



MANUALLY TRACKING OCCUPANCY HAS DOWNSIDES

Employers can quickly deploy employees to entrances with manual counters and phone/radios to communicate.

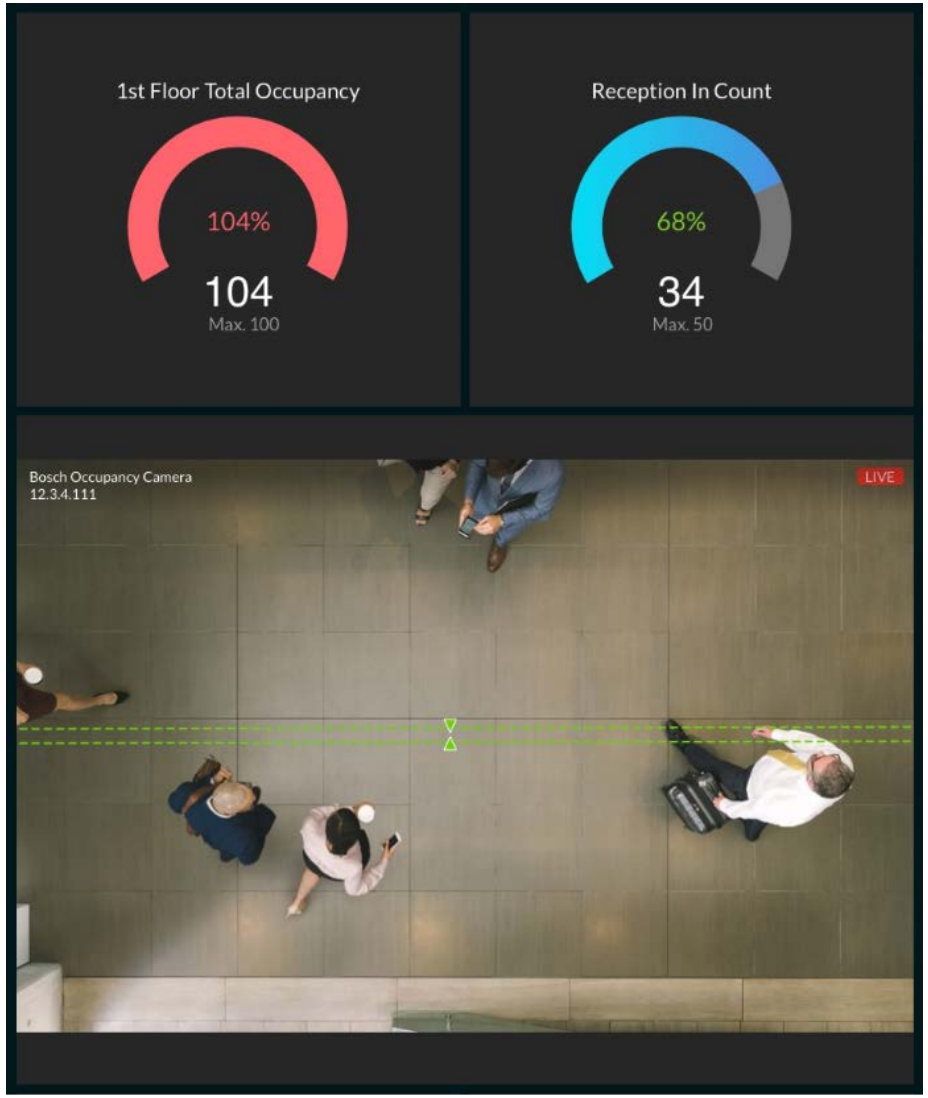
Problems with this approach:

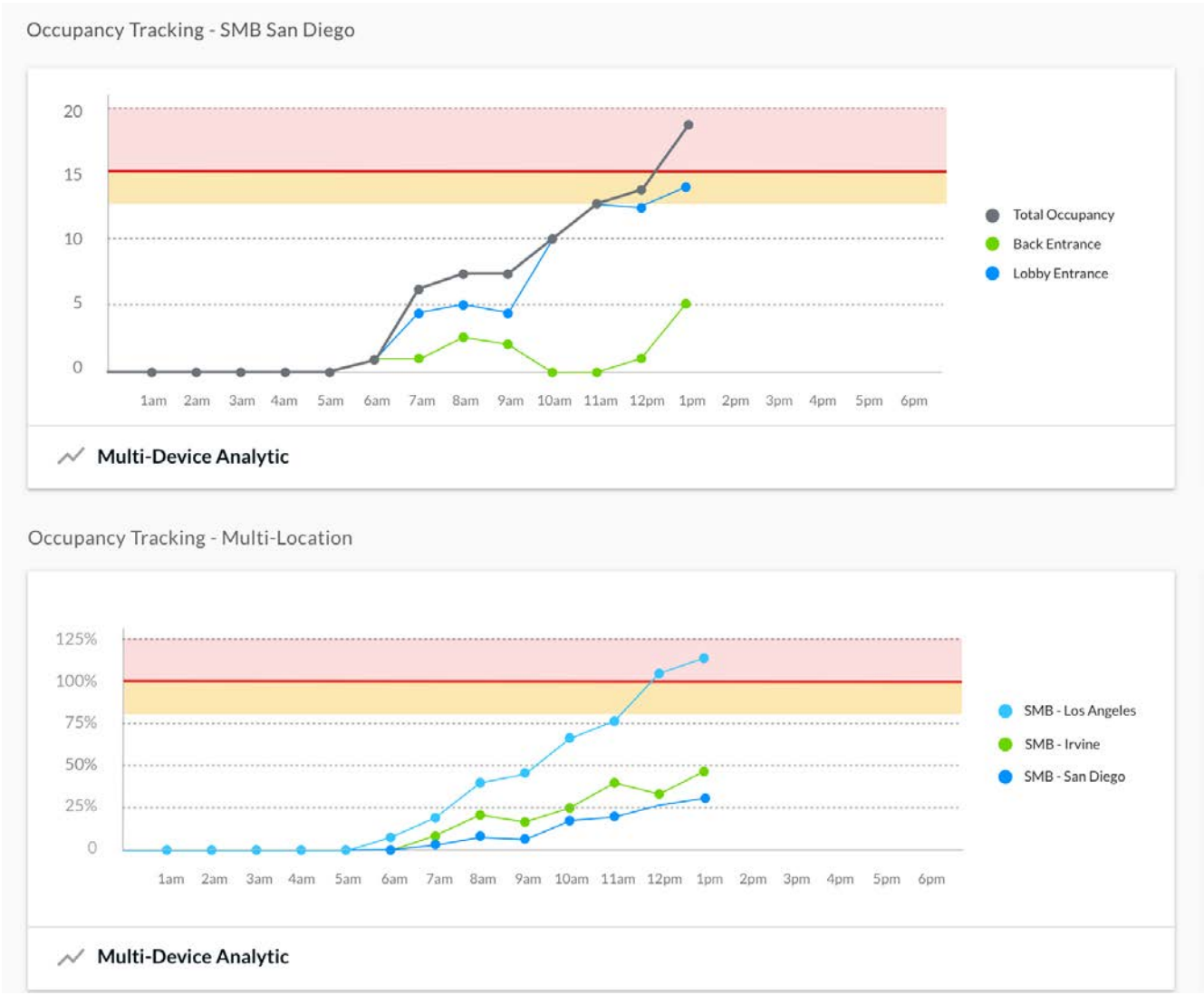
- **Low Accuracy** – error prone, difficult to coordinate across multiple entrances or areas
- **Expensive Labor** – requires doors to be attended full-time by employees
- **Limited Visibility / Monitoring** – little to no ability to monitor data at store-level or across multiple locations

TRACKING OCCUPANCY WITH VIDEO ANALYTICS

- IP Cameras are mounted with an overhead view of entrances
- Video analytics software counts people as they go in and out
- People counting data is aggregated across cameras/entrances for total area count
- Video displays and/or signal lights provide real-time status and signal when maximum occupancy is reached or it is clear to enter
- Occupancy data can be visualized for reporting of real-time status and historical trends

OCCUPANCY DATA OFFERS VALUE BEYOND COVID-19





Social Distancing Solution Types

- Video Analytics
  - Cameras Identify Individuals in FOV
  - Calculate Distance Between Individuals
  - Alerts & Video Indication when < 6 feet
  - Nothing Required on the Individual
  - Contact Tracing potential

Video Analytics

- Measuring RF Signals
  - Part of the Solution is “Worn”
  - BLE and / or Wifi
  - Smart Phones, Lanyards, Watches, Tags
  - Signal Strength and / or Triangulation
  - Recording of Contacts Possible with Some

Measuring RF Signals

Social Distancing Video Analytic Example

Social Distancing & Contact Tracing Example

GETTING STARTED

POLICY

- What is your thermal screening policy?
- Do you require a record of screening results?
- What is your policy for image capture and personal privacy?
- What is your image retention policy?
- How important are FDA clearance and NDAA regulations to you?

PEOPLE & PROCESS

- How many individuals do you need to screen over what timeframe?
- Where will you conduct temperature screening?
- Who will monitor the screening process?
- How will you handle positive detection of elevated body temperatures?
- Who will calibrate and support the system?

TECHNOLOGY

- Do systems need to be permanently installed or be mobile?
- Do you want to deploy standalone or integrated with your access control or video management systems?
- CDW recommends starting with a Proof of Concept deployment to test effectiveness in your environment

Back to School
Back to Work
Safely

THANK YOU