



MOTOROLA SOLUTIONS

MOTOROLA SOLUTIONS COVID-19 RESPONSE TECHNOLOGIES

TECHNOLOGY TO ENSURE THE HEALTH
AND SAFETY OF STAFF AND CUSTOMERS

AVIGILON™

ADAPTING WITH AVIGILON

TECHNOLOGY TO ENSURE THE HEALTH
AND SAFETY OF STAFF AND CUSTOMERS



THE SOLUTION

EVOLVE LIVE VIDEO MONITORING

With dashboard reporting available for our analytics-based COVID-19 response technologies, we are converting video to data – providing insights for decisive action.

NO ADDITIONAL COSTS

Customers on Avigilon Control Center (7) can leverage analytics-based COVID-19 response technologies at no additional costs.

CONTINUOUS INNOVATION

Motorola Solutions is actively researching, testing and re-engineering the technology we have in the market to provide end-to-end response technologies to help curb the spread, with new solutions coming soon.

ADAPTING WITH AVIGILON

THE SOLUTION

TECHNOLOGY TO ENSURE THE HEALTH
AND SAFETY OF STAFF AND CUSTOMERS



**MOTOROLA SOLUTIONS IS BRINGING TOGETHER THE TECHNOLOGIES
SO YOU CAN BENEFIT FROM THE POWER OF OUR ECOSYSTEM –
ENABLING YOU TO PREVENT, PROTECT AND RESPOND.**

COVID-19 RESPONSE TECHNOLOGIES

TECHNOLOGY TO ENSURE THE HEALTH
AND SAFETY OF STAFF AND CUSTOMERS



MOTOROLA SOLUTIONS
COVID-19 TECHNOLOGY



PREVENT

Leveraging **AI analytics** on **video security cameras** to limit occupancy rates, identify if people are wearing face masks and uphold social distancing guidelines.
Preventing risk of contact.



PROTECT

Using **body-worn cameras** on essential service workers to deter public aggression against front line workers and first responders.
Protecting safety of workers.



RESPOND

Contact tracing using **access control solutions** identify where individuals who are infected have been and responding accordingly.

Detecting elevated skin temperature at the place of work using security grade **thermal cameras**.

Responding to curb the spread.

COVID-19 RESPONSE TECHNOLOGIES

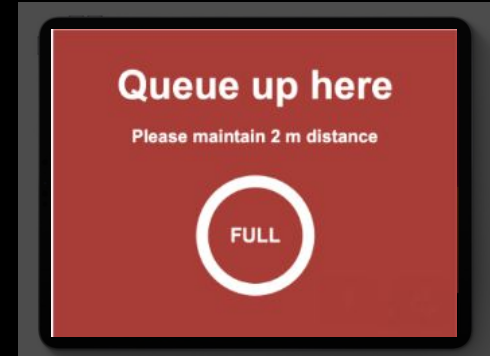
TECHNOLOGY TO ENSURE THE HEALTH
AND SAFETY OF STAFF AND CUSTOMERS



OCCUPANCY COUNTING TECHNOLOGY

Available June/July 2020 in ACC 7.6.4 connected to Avigilon Cloud Services (ACS)

- Video analytics embedded within H4A, H5A or third-party cameras connected to an Avigilon AI Appliance
- Analytic detects when a person crosses an entry or exit point
- Displays the number of people in a facility on a dashboard to indicate whether occupancy limit has been reached or not, informing control measures around entry
- Occupancy dashboard can be viewed on any device that can display a web page
- Avigilon Cloud Service connection is required to see dashboards from a web browser



COVID-19 RESPONSE TECHNOLOGIES

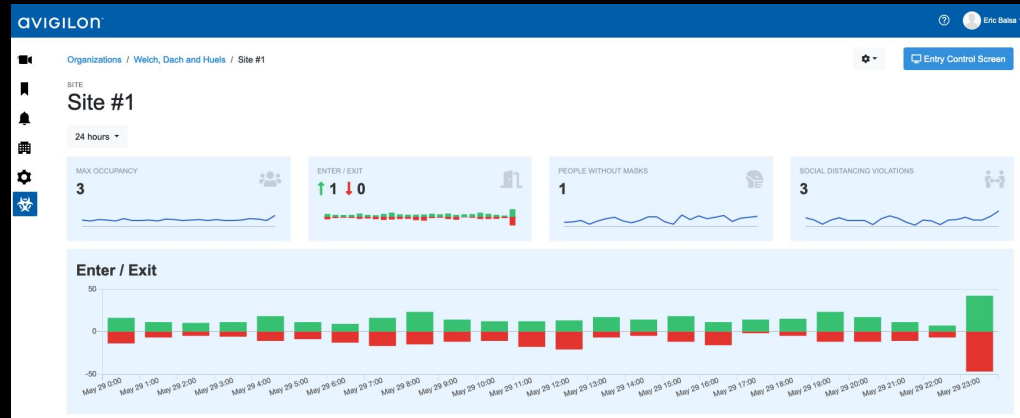
TECHNOLOGY TO ENSURE THE HEALTH
AND SAFETY OF STAFF AND CUSTOMERS



OCCUPANCY COUNTING TECHNOLOGY

Outcomes

- Remove the staffing costs required to manually count people and the subsequent guesswork on occupancy rates
- Understand hot spots and high traffic entry or exit points that require corrective measures to manage occupancy rates
- Occupancy Counting supports social distancing guidelines by limiting the number of people in a facility, thereby reducing the interactions between them



COVID-19 RESPONSE TECHNOLOGIES

TECHNOLOGY TO ENSURE THE HEALTH
AND SAFETY OF STAFF AND CUSTOMERS



OCCUPANCY COUNTING TECHNOLOGY

Use Case



A multi-tenanted commercial building implements social distancing measures by limiting the number of people inside to 10-30% of normal capacity.



Specially placed cameras at entry and exit points of the building monitor traffic and detect every person that enters and exits. The results are displayed in a dashboard showing current occupancy.



An internet connected device is installed at the building entrance to display how many people can enter. It shows green when there is capacity and customers can enter, and shows red 'please queue up here' when the occupancy limit has been reached.

COVID-19 RESPONSE TECHNOLOGIES

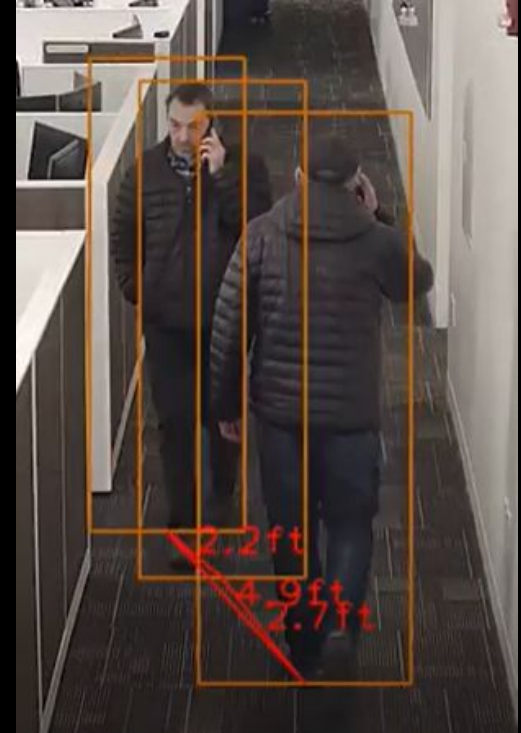
TECHNOLOGY TO ENSURE THE HEALTH
AND SAFETY OF STAFF AND CUSTOMERS



SOCIAL DISTANCING TECHNOLOGY

Available June/July 2020 in ACC 7.8 connected to ACS

- Video analytics embedded within H5A cameras
- Analytic determines the proximity of one person to another person
- No alerts, alarms or notifications in Focus of Attention
- Generate reports of when social distancing violations occur



COVID-19 RESPONSE TECHNOLOGIES

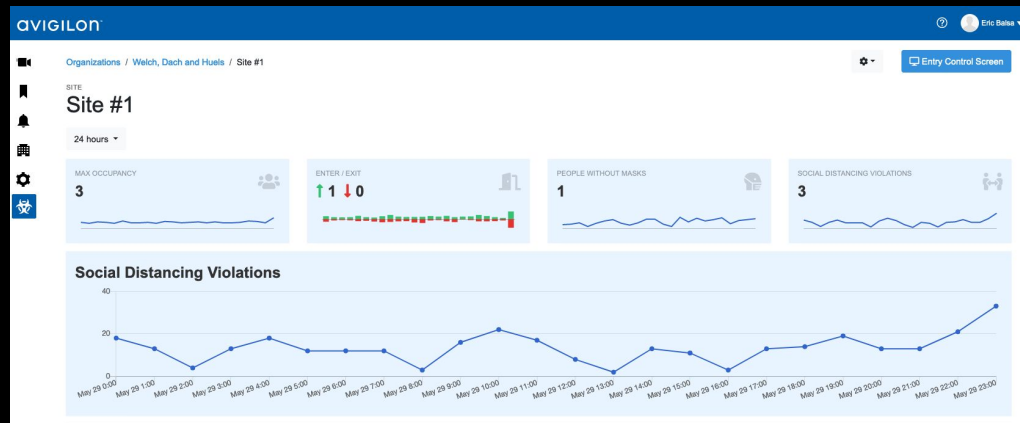
TECHNOLOGY TO ENSURE THE HEALTH
AND SAFETY OF STAFF AND CUSTOMERS



SOCIAL DISTANCING TECHNOLOGY

Outcomes

- Visual evidence and statistical patterns on where and when social distancing protocols are breached
- Understand frequency, hotspots and high-traffic zones for insights into where facilities require additional attention
- Improve ability for employees to abide by social distancing guidelines
- Understand compliance levels to determine if corrective action or further education is necessary



COVID-19 RESPONSE TECHNOLOGIES

TECHNOLOGY TO ENSURE THE HEALTH
AND SAFETY OF STAFF AND CUSTOMERS



SOCIAL DISTANCING TECHNOLOGY

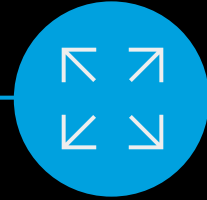
Use Case



Employees of a bank working in both branches and headquarters are returning to work. Facility Managers need to identify high-risk congestion areas that make social distancing challenging.



The Facility Manager runs a daily social distancing report to see where (camera) and when (video timeline) the bulk of social distancing violations are occurring to find hotspots and peak periods.



The Facility Manager takes mitigating steps such as making hallways one-way, limiting access to certain parts of the building (i.e. staff room, break room, kitchen) or changing the layout.

COVID-19 RESPONSE TECHNOLOGIES

TECHNOLOGY TO ENSURE THE HEALTH
AND SAFETY OF STAFF AND CUSTOMERS



FACE MASK DETECTION TECHNOLOGY

Available June/July 2020 in ACC 7.6.4 (for alerting)

Optional connectivity to ACS offers historical reporting and analysis

- Edge-based video analytics on H4A and H5A cameras
- Analytic detects if a person is not wearing a face mask
- Automated alerts in ACC, Radio Alert, ACC Mobile 3
- Run reports to determine levels of compliance across the organization (e.g. dept, time of day, etc.)
- Avigilon Appearance Search™ technology can help you determine all other areas where face mask policy violators may have visited within your facility, based on physical attributes



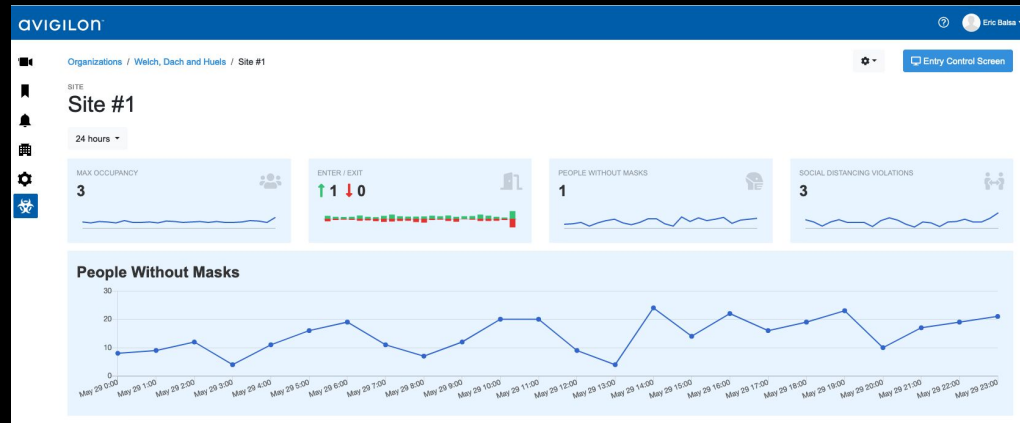
COVID-19 RESPONSE TECHNOLOGIES

TECHNOLOGY TO ENSURE THE HEALTH
AND SAFETY OF STAFF AND CUSTOMERS



FACE MASK DETECTION TECHNOLOGY *Outcomes*

- Analytics automate monitoring and detection of violations
- Notifications proactively alert you to unsafe practices
- Understand compliance levels to determine if corrective action or further education is necessary
- Prevent community transmissions amongst people



COVID-19 RESPONSE TECHNOLOGIES

TECHNOLOGY TO ENSURE THE HEALTH
AND SAFETY OF STAFF AND CUSTOMERS



FACE MASK DETECTION TECHNOLOGY

Use Case



Workers enter a facility where policies are in place enforcing all personnel to wear protective masks.



Cameras monitor for human objects that are not wearing masks and detect violations as they enter the facility.



The Facility Manager is notified on their MOTOTRBO radio via a software rule. They approach the employees and remind them to follow face mask wearing policies before entering the facility.

COVID-19 RESPONSE TECHNOLOGIES

TECHNOLOGY TO ENSURE THE HEALTH
AND SAFETY OF STAFF AND CUSTOMERS



BODY-WORN CAMERAS FOR FRONT LINE STAFF

Available in US, Canada, Australia, New Zealand and EU/EFTA countries

- Businesses can provide the necessary safety and security measures for their front line workers
- Presence of recording device encourages a positive effect on the behavior of citizens, deters aggression and often de-escalates situations
- Cameras can connect to Avigilon Control Center™, prompting security staff to incidents with a live video stream, allowing real-time situational awareness



COVID-19 RESPONSE TECHNOLOGIES

TECHNOLOGY TO ENSURE THE HEALTH
AND SAFETY OF STAFF AND CUSTOMERS



BODY-WORN CAMERAS FOR FRONT-LINE STAFF

Use Case



A Receptionist at a large commercial building is helping a an employee who is increasingly frustrated and becomes verbally aggressive. Due to occupancy level enforcement.



The Receptionist politely asks the employee to calm down and informs them that the entire incident is being captured on video.



The employee, upon hearing that their actions are being recorded, calms down and complies with Receptionist's instructions.

COVID-19 RESPONSE TECHNOLOGIES

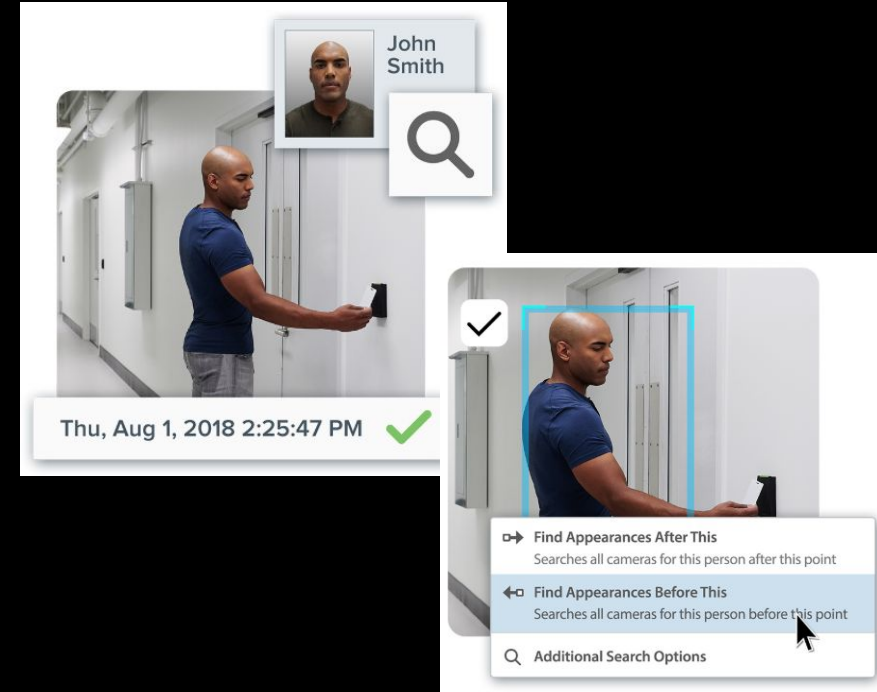
TECHNOLOGY TO ENSURE THE HEALTH
AND SAFETY OF STAFF AND CUSTOMERS



CONTACT TRACING TECHNOLOGIES

Available in June 2020 in Access Control Manager (ACM) 6.6

- Identity Correlation Report as a native feature in ACM™ 6.6
- Forensically retrace steps of known infected identities
- Reports on all locations where a potentially infectious identity has been, along with all other identities who have been in the same locations for a specified period of time
- ACM-ACC unification validate report findings with video:
 - Identity Search confirms contact with doors that the person in question attempted to access
 - Appearance Search helps expand search to understand other facility areas where the person may have visited



COVID-19 RESPONSE TECHNOLOGIES

TECHNOLOGY TO ENSURE THE HEALTH
AND SAFETY OF STAFF AND CUSTOMERS



CONTACT TRACING TECHNOLOGIES

Outcomes

- Quickly determine contaminated entry-way surfaces (e.g. door handles)
- Re-trace chain-of-events from initial point of contamination
- Prevent further contamination across facility and amongst workers
- Respond with targeted hygiene and safety measures:
 - Quarantine the infected employee
 - Gather potentially exposed employees for testing
 - Increase sanitization of potentially contaminated areas



COVID-19 RESPONSE TECHNOLOGIES

TECHNOLOGY TO ENSURE THE HEALTH
AND SAFETY OF STAFF AND CUSTOMERS

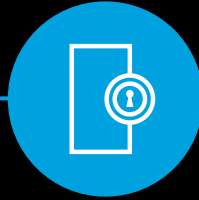


CONTACT TRACING TECHNOLOGIES

Use Case



A symptomatic employee of a logistics company comes to work. The employee moves through the warehouse accessing different doors. Later, the employee tests positive for COVID-19.



The Facility Manager generates a report of any doors accessed by the employee, including the date and time. They also expand the report to include a window of two hours before and after each door access event attempted by the employee.



The Facility Manager also reviews all access attempts by other employees for the same doors during that window to identify potentially exposed employees.

COVID-19 RESPONSE TECHNOLOGIES

TECHNOLOGY TO ENSURE THE HEALTH
AND SAFETY OF STAFF AND CUSTOMERS



THERMAL DETECTION CAMERAS

Now available for Pre-Orders in the **USA, UK and EU countries** only.
General Availability in August 2020.

- Embedded with edge-based analytics to detect faces and notify operators of elevated skin temperature as a precursor to additional screening*
- This thermal camera, coupled with a blackbody uniform temperature source acting as an absolute temperature reference point, provides a low friction, contactless alternative to traditional screening methods
- Elevated temperature events can be configured in ACC along with complete end-to-end workflows for monitoring, assigning and acknowledgement of elevated temperature alarms



**Not a replacement for medical-grade devices and professional opinion.*

COVID-19 RESPONSE TECHNOLOGIES

TECHNOLOGY TO ENSURE THE HEALTH
AND SAFETY OF STAFF AND CUSTOMERS



THERMAL DETECTION CAMERAS

Outcomes

- High-throughput pre-screening of people to detect elevated skin temperatures as an additional layer to existing physical screening performed by a nurse
- Alert to the presence of a person with elevated skin temperature
- Screening at access control points can be used to allow Facilities team to conduct additional screening if a person's temperature doesn't fall within a prescribed range



COVID-19 RESPONSE TECHNOLOGIES

TECHNOLOGY TO ENSURE THE HEALTH
AND SAFETY OF STAFF AND CUSTOMERS



THERMAL DETECTION CAMERAS FOR FEVERS

Use Case



Thermal cameras at access control points of a commercial building are used to conduct high throughput screening of employees as they enter the building.



An employee enters the building where a thermal camera is installed. The camera detects elevated skin temperature that exceeds the prescribed range.



The employee with elevated skin temperature is sidelined for further evaluation and screening.



SYSTEM REQUIREMENTS

All video solutions minimally require Avigilon Control Center 7

COVID-19 RESPONSE TECHNOLOGY	ACC VERSION	APPLICABLE CAMERAS	APPLICABLE HARDWARE	PRICE
Face Mask Detection	ACC 7.6.4	H5A, H4A	HDVA Pro or NVR4 (with GPU)	Included with ACC license
Occupancy Counting	ACC 7.6.4 + ACS Connectivity	H4A, H5A, or third-party camera with Analytics Appliance	Any	Included with ACC license
Social Distancing	ACC 7.8 + ACS Connectivity	H5A	Any	Included with ACC license
Thermal Elevated Temperature Detection Solution	ACC 7.8.x	H4 Thermal Camera	Any	USD\$13000 MSRP
Identity Correlation Reports for Contact Tracing	ACM 6.6 ACC 6+ ENT	H4A, H5A, or third-party camera with Analytics Appliance	HDVA or NVR4 (with GPU)	Included with ACM license



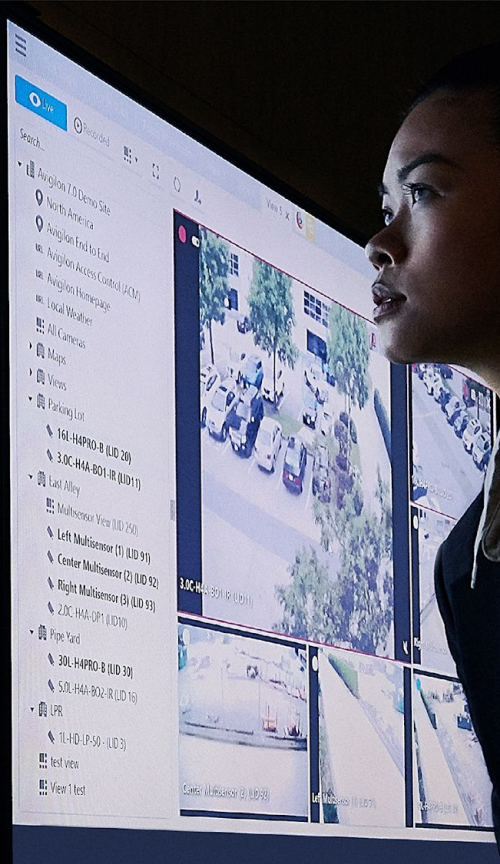
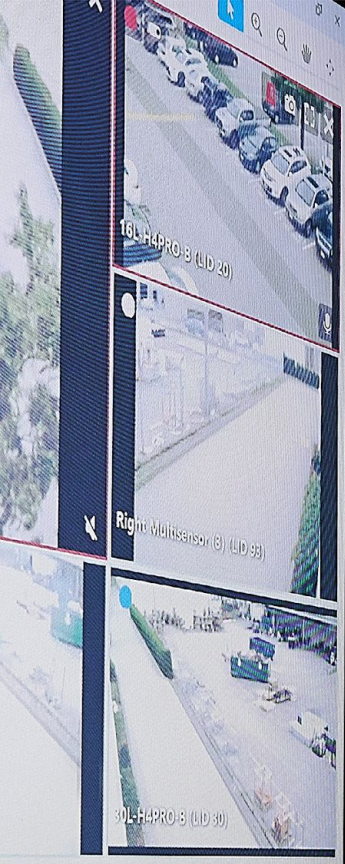
MOUNTING OPTIONS FOR AVIGILON CAMERAS

COVID-19 RESPONSE TECHNOLOGY	CAMERA POSITION	MOUNTING LOCATION
Face Mask Detection	<ul style="list-style-type: none">• For optimal results, tilt the camera up to 30° from horizontal. Shallower angles will produce better results.• Ensure the scene is well-lit.	<ul style="list-style-type: none">• Mount the camera so that people in the scene are front-facing and are not looking down.• Let the camera angle determine mounting height. Mounting heights of 2.8 meters (9 feet) or lower typically have a good angle to target faces.
Occupancy Counting	<p>Refer to Designing a Site with Avigilon Self-Learning Video Analytics under the Classified Object Detection - Self-Learning tab.</p> <ul style="list-style-type: none">• Cameras can be tilted within 30° from the horizontal for optimal object classification.• Camera field of view must be level with the horizon.• People moving parallel to the field of view provide better results than objects moving to or from.	<ul style="list-style-type: none">• Cameras should be mounted at a minimum of 2.8 meters (9 feet) level to the horizon and ground plane for outdoor or large indoor areas.• When using the Enter Occupancy Area and Exit Occupancy Area rules, ensure objects are detected in the camera field of view for at least 2 seconds before crossing the line.

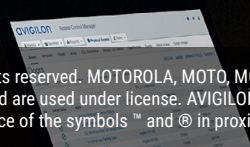


MOUNTING OPTIONS FOR AVIGILON CAMERAS

COVID-19 RESPONSE TECHNOLOGY	CAMERA POSITION	MOUNTING LOCATION
Social Distancing	<p>Refer to Designing a Site with Avigilon Self-Learning Video Analytics under the Classified Object Detection - Self-Learning tab.</p> <ul style="list-style-type: none">● Cameras can be tilted within 30° from the horizontal for optimal object classification.● Camera should be tilted no more than 45° from the horizontal.● Camera field of view must be level with the horizon.● People and cars moving parallel to the field of view provide better results than objects moving to or from.	<ul style="list-style-type: none">● Cameras should be mounted at a minimum of 2.8 meters (9 feet) level to the horizon and ground plane for outdoor or large indoor areas.
Thermal Elevated Temperature Detection Solution	<p>Refer to Product Datasheet for installation guidelines.</p> <ul style="list-style-type: none">● Camera should be at a distance of 1-2m from subject.● Blackbody device should be approximately at the same distance from the camera as the subject and within the camera's field of view.● Blackbody should be 2m from the ground.● Accuracy is within +/- 0.5 degrees	<p>Ideal mounting locations require these conditions:</p> <ul style="list-style-type: none">● Neutral background without reflections (glass/plastic/metal).● No air flow from the HVAC system.● Indoor use under stable temperature environments (ideally between 20-24°C).● No strong lighting within the camera field of view



THANK YOU!



© 2020, Avigilon Corporation. All rights reserved. MOTOROLA, MOTO, MOTOROLA SOLUTIONS and the Stylized M Logo are trademarks or registered trademarks of Motorola Trademark Holdings, LLC and are used under license. AVIGILON and the AVIGILON logo are trademarks of Avigilon Corporation. Other names or logos mentioned herein may be the trademarks of their respective owners. The absence of the symbols ™ and © in proximity to each trademark in this document or at all is not a disclaimer of ownership of the related trademark.

AVIGILON™