FVA-IP Camera Zoning

The Fike Video Analytics system offers a very unique way to remedy false alarm activations by using zones. Zones are user defined regions of the image that provide special treatment for alarms when they originate within the zone of the image. Zones can be programmed so that alarms will not be issued while the body of flame or smoke is entirely contained within the boundaries of the zone. Zones can be scheduled to activate at different times. For example, smoke triggering patterns may be appearing on a particular part of the wall at sunset. A zone can be set up to cover the area and programmed for activation in the evenings only. For real smoke situations, it is still safe, since real smoke will outgrow the zone, diffusing over the entire space activating the Fike Video Analytics system alarm. Fine tuning the zones should be part of the commissioning process and can be done from a command workstation by trained professionals. Documentation should be kept and an engineering judgment should be used to evaluate the effect of the zones and schedules.

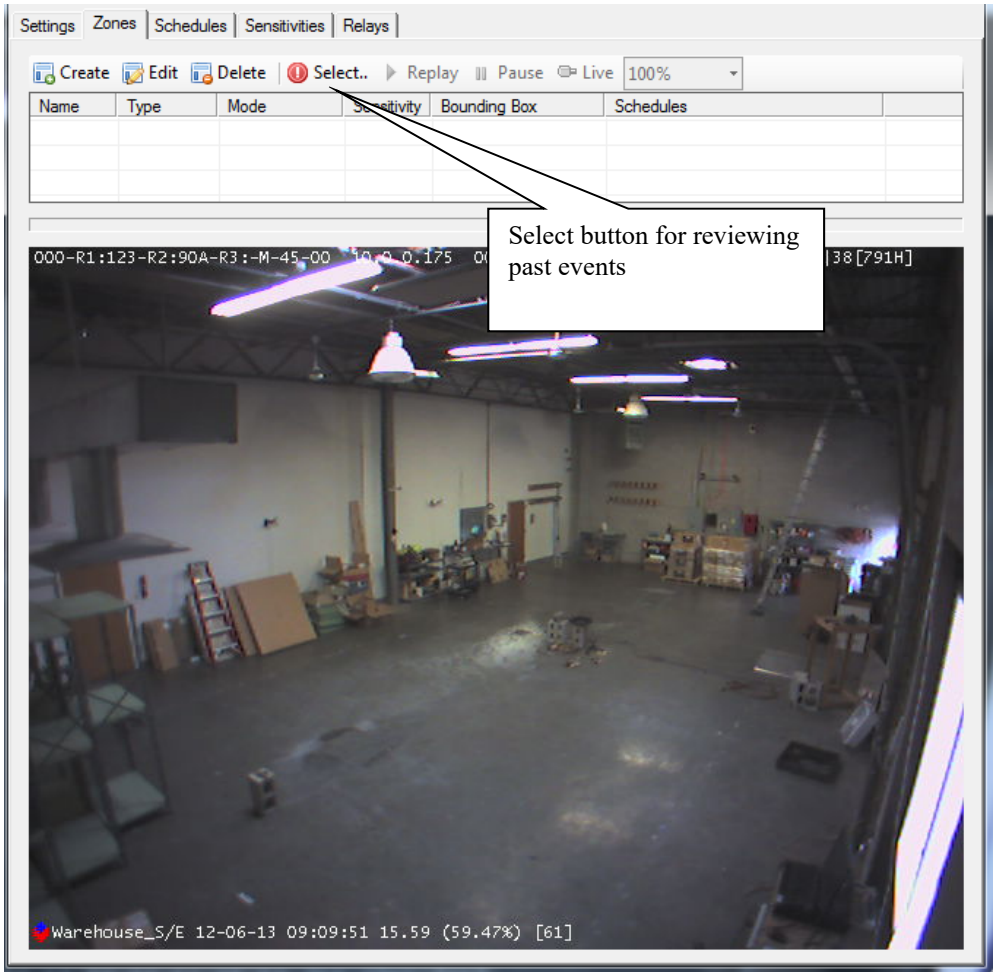
It is important to understand that, with the Fike Video Analytics system, the blocking zone only blocks the alarm while the event is occurring within the boundaries of that one zone. The zones are not cumulative, so adding multiple zones that spread across the whole image will not stop detection from occurring. As soon as the event (smoke or flame) reaches the edge of the zone, the camera will go into an alarm state. This is because the camera is still processing the whole image irrelevant of zones. As an example, if a large blocking zone is placed on the bottom of the camera's image, and a smoke source begins, the camera will track that smoke plume. Once the smoke reaches the edge of the zone, it will alarm.

In addition, each zone is algorithm dependent. So a flaming fire within a smoke blocking zone will still be detected. A second flame blocking zone would have to be created to block the flame alarm from occurring.
So for review:

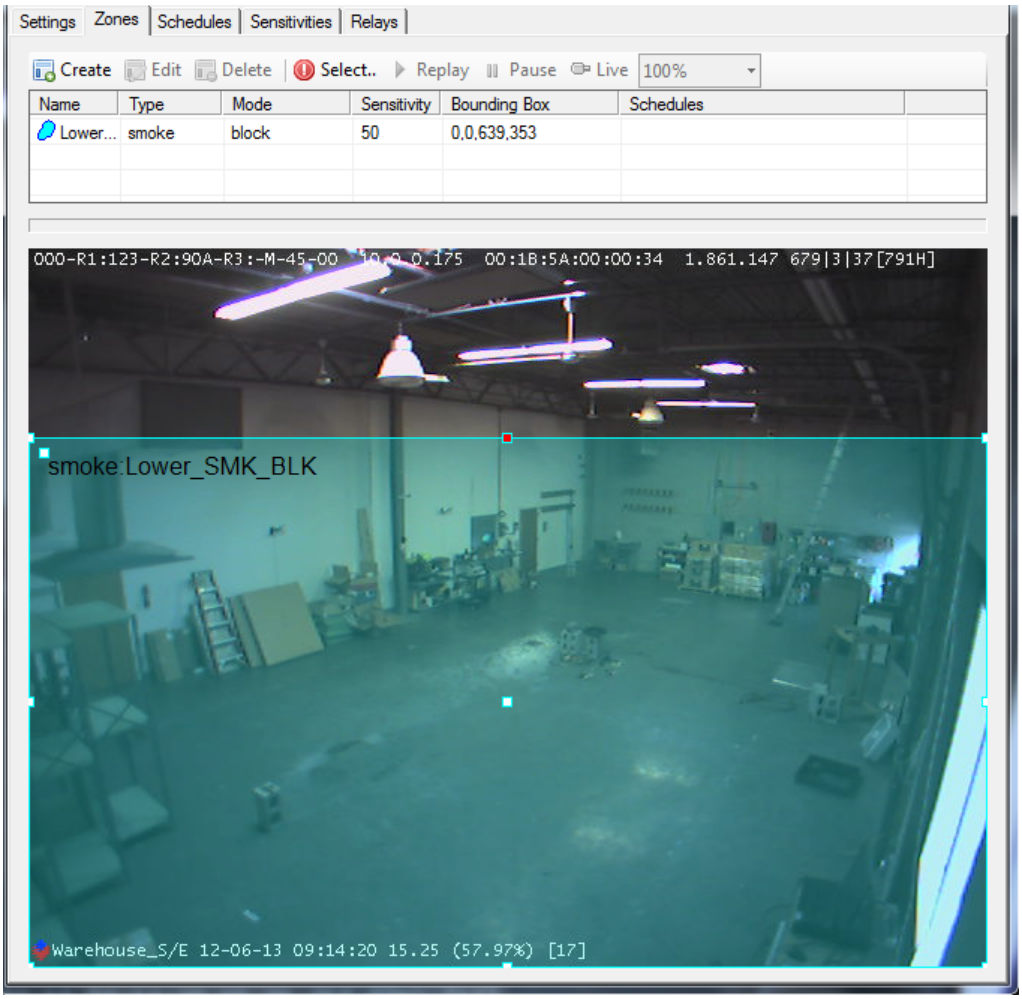
- Each zone is independent
- Each zone blocks the alarm not the algorithm process
- Each zone is specific to the alarm type (flame or smoke)
- Each zone can be given its own schedule
- The zones do not work together to mask a cumulative area

Doc. P/N 06-788
Rev. 1 / June, 2019

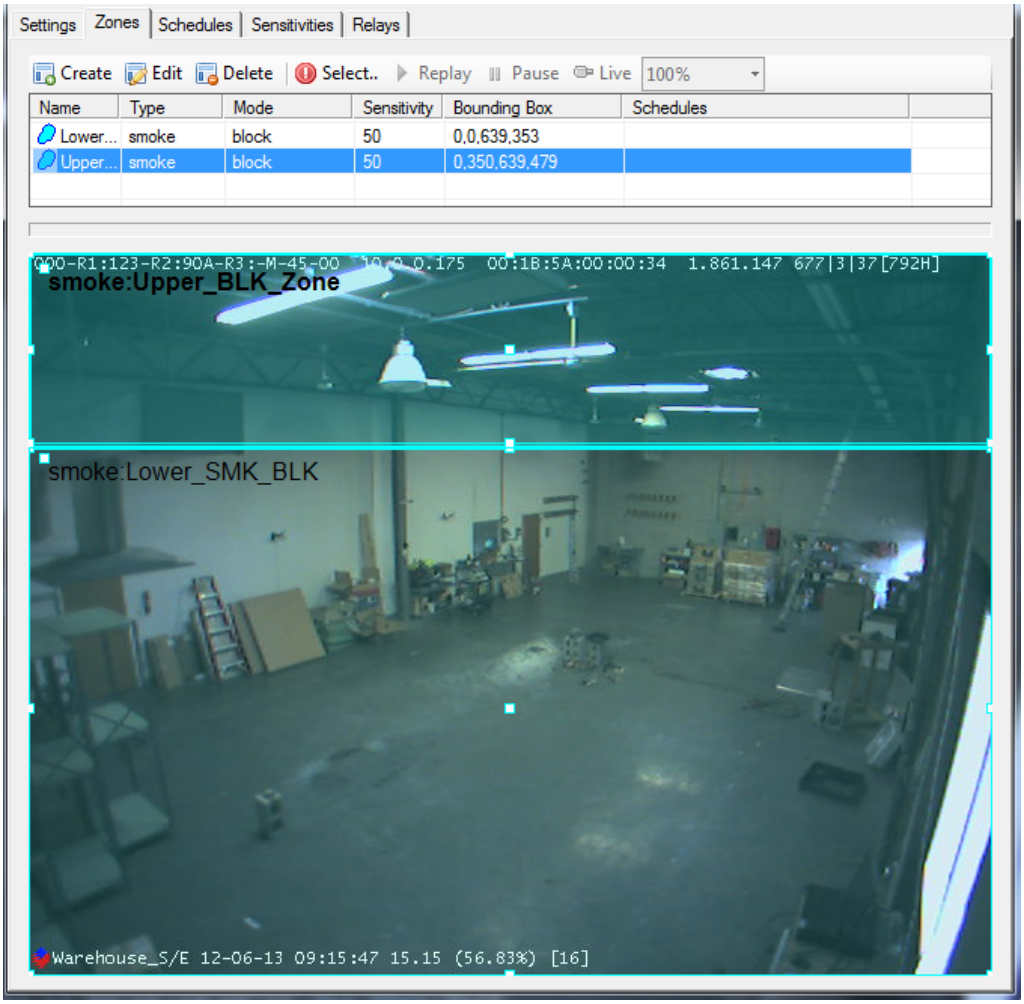
The following are some examples of zoning that can be used in order of sensitivity



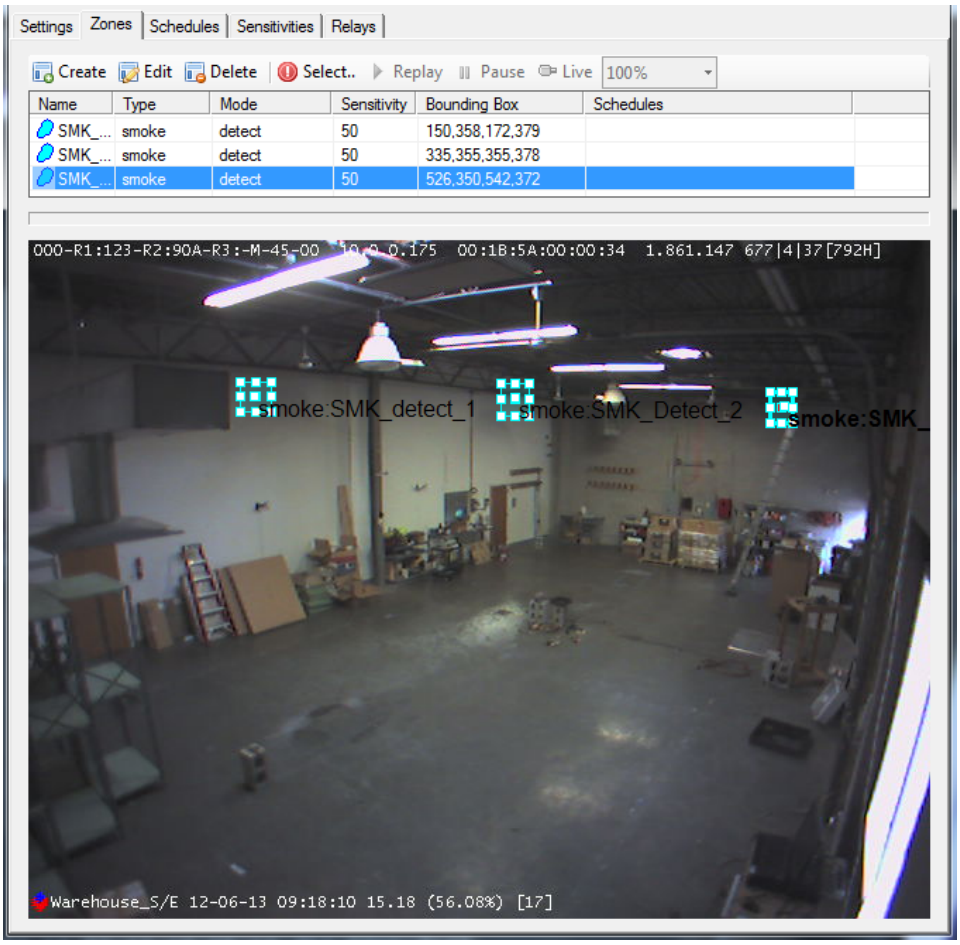
No Zones – The default setting is for no zoning resulting in the most sensitive setting. Leaving the camera in its default setting for the first two weeks is the best way to collect alarm data that can then be reviewed in the zone editing window. Blocking zones are then created to eliminate the false activations. By clicking on the "select" button you can review past events while editing the zone shape to ensure you are covering the whole alarm area. If the whole alarm area is not properly covered, the alarm will occur again as the event breaks out of the blocking zone.



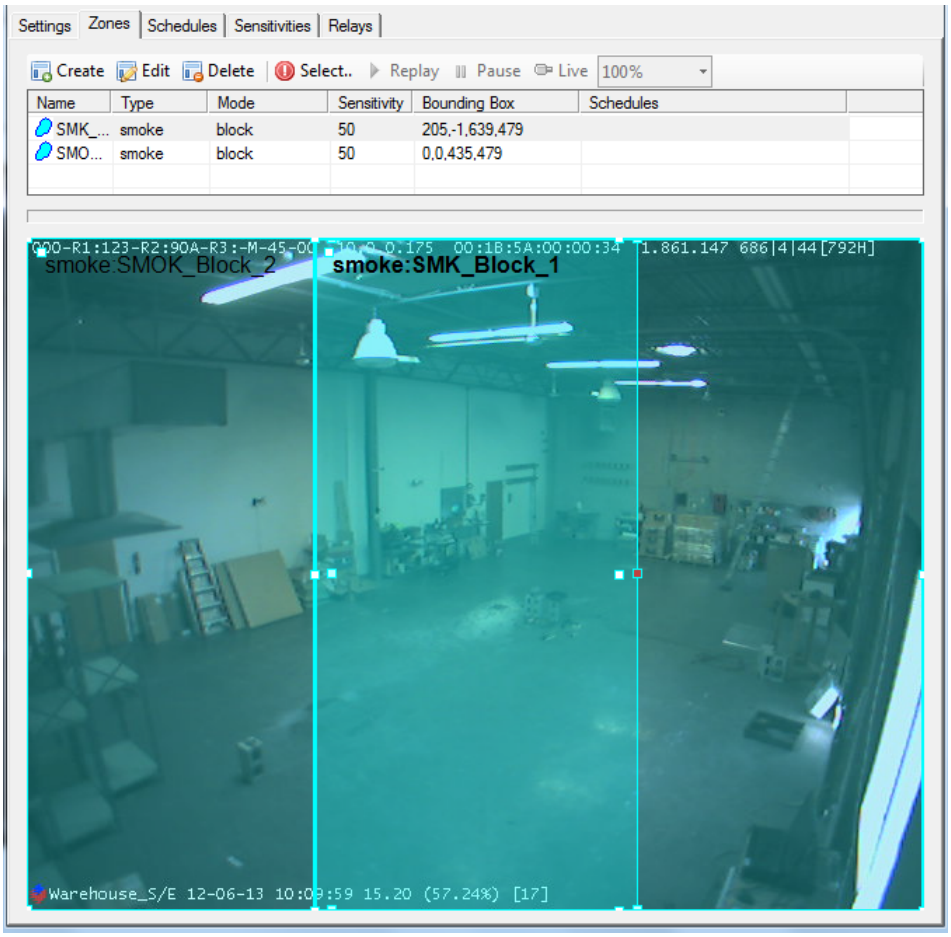
One Blocking Zone - Creating one blocking zone covering the lower portion of the image is typical in most applications. This increases the time to detection only slightly as smoke has a tendency to rise above the lower zone. This lower zone could rise as high as the ceiling where detection would still be quicker than spot detectors. This is due to the fact that not only does the smoke have to rise to the level of the spot detector, it has to travel horizontally with enough velocity to enter the detector and be a great enough concentration to set off the detector. The lower blocking zone prevents false activations due to shadows and other movement on the ground, which generates patterns that fool the camera. In this scenario, any smoke originating outside the zone will create an alarm as well as any smoke within the blocking zone will be tracked and as soon as it reaches the zone boundary will cause an alarm.



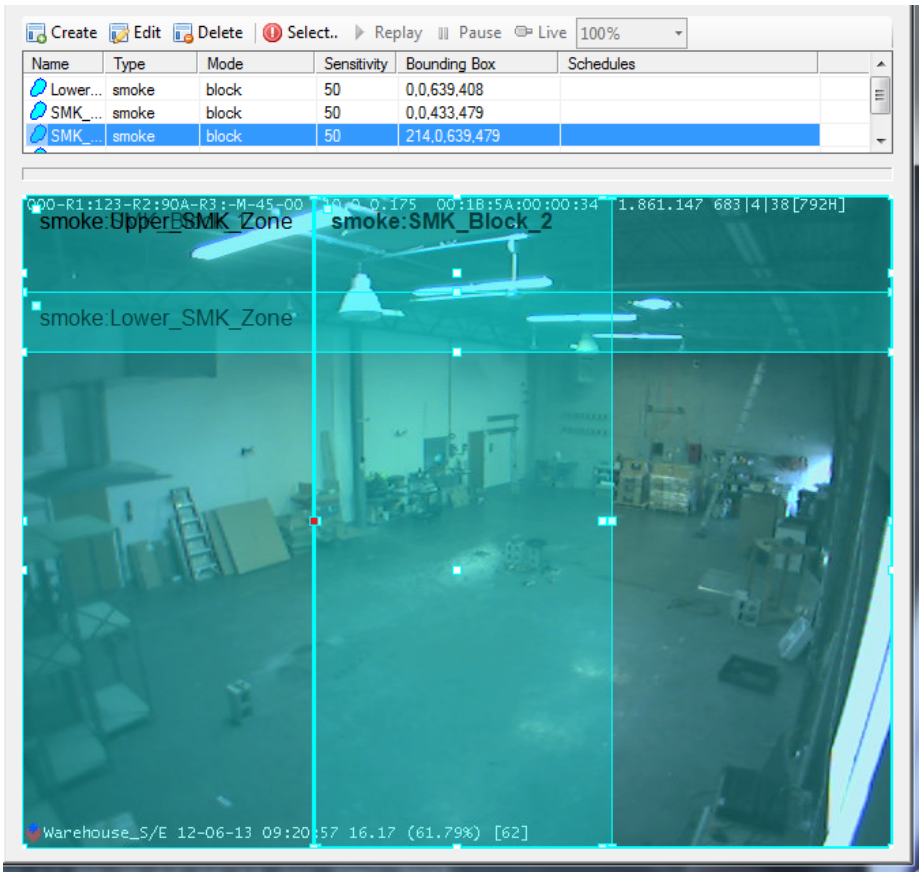
Two Blocking Zones - Creating an upper and lower zone, lowers the sensitivity in the upper region as now smoke has to bank downward breaking the plane created by the two zones. Similar to the previous scenario, the smoke source in the lower zone would have to rise out of the initial zone to activate an alarm. This turns the camera into a plain detector with 640 vertical pixels. This would be equivalent to placing 640 beam detectors side by side to cover the vertical plane of the hazard area.



Detection Zones - Detection zones can be created. Doing this makes blocking zones obsolete and they should be removed, as they will clutter the image and confuse anyone not familiar with the system. Once a detection zone is created, the camera will only go into an alarm state once the smoke has reached that zone. The camera will still be looking for and tracking any smoke but again, the alarm will not be recognized until what the smoke algorithm is tracking reaches the created detection zone. This conceivably changes the camera into a beam detector as the point on the image stretches out into the field of view. This is less sensitive than the prior scenario as smoke would have to expand vertically and horizontally to potential hit a zone rather than just vertically.



Side by Side Zones – Zones created side by side will result in the smoke having to travel horizontally to initiate and alarm. This can be created with more than just two zones so the smoke movement does not have to be so drastic. The concept is depicted in the image above and would result in the smoke having to travel horizontally out of the zoned area to initiate detection. This scenario is rarely used without the lower blocking zone, as the patterns created in the lower half of the image stretch and move horizontally.



Overlapping Zones - Smoke blocking zones can be created in the upper and lower portions of the image as well as on the right and left sides of the image. These zones can then overlap to different degrees. This scenario is the least sensitive while still detecting smoke (One zone blocking the whole image would stop any alarm from occurring). This scenario would require the smoke to travel vertically and horizontally expanding out of all overlapping zones.

To give you an idea of the change in performance, a test was run with a 3 minute smoke emitter at about 45 feet from the cameras. Scenarios 1 through 4 can almost be lumped together; while scenarios 5 and 6 start to show a delayed detection time more on par with conventional detection (spot, beam).

Zoning scenario	**Detection Time**
No zone	47 seconds
Lower zone	62 seconds
Lower and upper	117 seconds
Detection zones	99 seconds
Vertical zones	190 seconds
Vertical and horizontal zones	195 seconds

For further assistance please call Fike Video Analytics Corporation technical support at (844-345-3843).

This page intentionally left blank.