FVA-IP CAMERA INSPECTION, TESTING AND MAINTENANCE

NFPA 72 Recommendations

Chapter 14 dictates that video image smoke and flame detectors shall be inspected, tested, and maintained in accordance with the manufacturers published instructions. Fike Video Analytics Corporation as the manufacturer of the Fike Video Analytics video image flame and smoke detector has detailed these procedures to aid end users, AHJs, and Fike Video Analytics distributors in establishing an inspection, testing and maintenance program. It is in the interest of all parties to ensure that a functional system is provided and maintained.

Inspections

Inspections should be done on a semi-annual basis, every six months. However, camera(s) and associated equipment that is inaccessible for safety considerations (e.g. continuous process operations, energized electrical equipment, radiation, and excessive height) shall be inspected during scheduled shutdowns if approved by the authority having jurisdiction. These extended intervals shall not exceed 18 months. The inspection should ensure no obstructions are between the detector and protected area, that lenses are clear, free of contaminants, the cameras do not have mechanical damage, and that the unit is directed toward the intended hazard.

Obstructions within 3 meters of the camera that obstruct the line of site to the hazard area are to be removed or the camera location is to be adjusted to ensure that the hazard area is covered.

The video feeds at the security station can be checked for clarity to ensure that a build-up of dust, grease and/or other debris has not obscured the lens. Reference images produced from the FVA video management software (FVA-VMS) audit report can be used as a reference. See manual P/N 06-522.

A visual inspection of the camera should be made to identify mechanical damage.

The camera's field of view (FOV) and settings should be checked to ensure that it matches the audit report and that the cameras have not been moved or misaligned. An audit and audit verification should be conducted every six months. Please refer to the "Audit Report Generation" how to guide P/N 06-781.

Testing

Testing of the system is only required at the time of commissioning. Inspection and maintenance does not require simulated response tests but should be performed every six months. Tests are performed by Fike Video Analytics Corporation as part of the Quality Control (QC) process. All Fike Video Analytics IP cameras undergo extensive testing before being shipped to a customer as part of Factory Mutual (FM) approval and UL Listing conformance. These tests include live fire and smoke tests, communication tests, and a burn in of the cameras. Cameras located on site can be visually inspected for operational conformance. This is done by observing the user interface video stream and the front face plate of the camera. If an image is present and the overlay text added by the software is updating (time and frame rate will progress and fluctuate respectively) then the cameras are functioning and they have the ability to detect at the prescribed sensitivity levels.

Additional Testing for Operational Conformance

The goal of testing is to assure that the entire system will register and properly report the following:

1. Content Fault (Deterioration of the image quality)
2. Network Fault (Communication failure from the camera)
3. Power Loss Fault
4. Analytics (Simulated response)

Fault Condition

If applicable, a fault condition can be tested by simply covering the lens of the camera with the cap, or lowering the light level below the alarm threshold. The system will respond by reporting a content fault on the selected relay in approximately 30 sec.

Communication failure / Analytics failure

If applicable, a network communication fault can be achieved by disconnecting the camera from the network switch. The selected fault relay will close and video management software will report a loss of the camera in approximately 10 seconds.

Power Loss

A power loss will result in relay 2 switching state. A power loss can be achieved by removing power from the camera or selecting the reboot button from the server tab in FVA-VMS software. See manual P/N 06-522.

Simulated response

There are several ways to test whether event reporting is operational. These should be discussed between the end user, AHJ, and distributor as to which is applicable for the installation.

The first method is to temporarily introduce a motion detection zone and configure the relays to close on detection of such motion. Introducing motion into the observation area will cause a closure of the relay and an alarm response will be communicated to the user interface. On completion of this test, the motion zone can be removed and the relay disengaged. This scenario verifies that all camera functions are working properly and ensures that image capture, software, and communication are functioning.

The second method is to initiate a user alarm after configuring the relays to close on the user initiated alarm. This will cause a closure of the relay and an alarm response will propagate to the user interface. On completion of this test, the user alarm can be stopped and the relay can be disengaged. This scenario ensures that communications are functioning and a visual inspection of the video ensures software integrity.

The third method is to initiate live fires within the camera's field of view. This can be done using safe smoke (Regin smoke emitters or theatrical smoke) and low soot flames (Isopropyl alcohol, heptanes or a properly configure propane torch with the air inlets covered to create a diffusion flame). These live fire tests will initiate an alarm much like a motion or user event and close the respective dry contact and send an alarm response to the user interface. The distance the testing can occur from the camera will be based on the size of the smoke emitter or flame used. Below is a table of fire size to distance.

Source	Distance (ft)
Plumbers propane torch	<20 ft
6 in pan fire	<30-50 ft
1 ft pan fire	<100 ft
90 second smoke emitter	<30 ft
3 min smoke emitters	<50-60 ft
4 min smoke emitters	<100 ft
Theatrical smoke	Varies based on equipment

After finalizing testing, an Audit should be created for verification purposes using the FVA video management software.

Maintenance

This section deals with preventive maintenance, describes possible faults in camera operation and indicates corrective measures. Ignoring these instructions may cause problems with the detector and may invalidate the warranty. Whenever a unit requires service, please contact the manufacturer or its authorized distributor for assistance.

Maintenance should be done on a semi-annual basis (every six months) along with the visual inspection. However, camera(s) and associated equipment that is inaccessible for safety considerations (e.g. continuous process operations, energized electrical equipment, radiation, and excessive height) shall be maintained during scheduled shutdowns if approved by the authority having jurisdiction. These extended intervals shall not exceed 18 months. The Fike Video Analytics IP camera is designed to provide years of trouble free operation with little to no attention. However, the periodic maintenance steps described below will allow for reliable fire and security protection.

Maintenance records should be kept on each detector and stored in a log book. The record should include the name, affiliation, business and telephone number of the person(s) performing inspection, maintenance test, etc. Also an ID of the unit, test frequency, name of property, address, the installation date, and entries for every maintenance operation performed including the description of the operation, date and personal ID should be included. If a unit is sent to the manufacturer or distributor for service, a copy of the maintenance records should accompany it.

> *Note: Before working on the IP camera, inform all appropriate personnel of your intention to work on the camera and the duration of which you expect the maintenance interval to last.*
>
> *Disable any automatic systems that may be activated by the camera's alarm signals this may include audio and visual alarms or dialers, extinguishing agents, and building controls.*
>
> *Do not forget to Re-initiate the disabled automatic systems and inform all appropriate personnel that you now have completed the maintenance and that the system is back on line.*

Check the fault log on video management software to ensure that that the detectors are functioning properly. Note any faults and the cause (low light, blurred image, content, loss of communication, etc.). Fault conditions with their probable cause and corrective action are listed below.

Content Fault – The camera may have been covered or the area is too dark for proper smoke detection. If the camera is covered, remove the obstruction and take preventative measures to ensure it does not occur again. If the area is too dark, inform the end user that more lighting is necessary to maintain the 1 Fc (10 Lux) for the smoke detection algorithm to properly function. In addition, a content fault can occur if the camera becomes misaligned and is facing a wall or other large object. If possible, remove the obstruction and take preventative measures to ensure that it does not occur again or/and re-align the camera so the FOV matched that of the previously recorded image.

Focus Fault – The camera's lens has become too dirty or the lens itself has moved resulting in bad focus. Clean the lens and/or readjust the focus to provide a clear image.

Network Fault – A loss of communication from the camera to the end user interface has occurred. If these are short in duration (less than 5 seconds) they can be due to dropped informational packets on the network, and does not affect system performance. If the loss is greater than 5 seconds, check the condition of the LAN network both physically and operationally. Ensure that the switches are properly powered and in good working order, ensure that all RJ-45 connections are secure and that no mechanical damage has occurred to the network. Finally, ensure that the network bandwidth is large enough for the number of cameras and their frame rate settings.

Inspect the video image feed to the user interface (FVA-VMS) for a build-up of dust, debris, or out of focus lens. There may not be enough to cause a fault condition yet, but cleaning may still be necessary. If necessary clean the lens Ensure that the camera still has a clear line of site to the hazard area and compare the previous recorded image report with the current image to ensure that the camera has not been misaligned. Use the verify feature which compares the current state of the cameras to the recorded audit in the video management software. Address and correct any issues Identified by the audit verification. Keep a copy of the verification report for your records.

Check to ensure that the camera is securely mounted to the wall.

That concludes the inspection, testing and maintenance of your Fike Video Analytics video image fire and smoke detection system. By implementing a service and maintenance program you are ensuring the uninterrupted operation of your Fike Video Analytics system keeping your assets secure and safe.

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

This is the main commissioning form for each customer site.

Customer Name	
Site Address	
Installer (Name & Contact)	
Commissioner (Name & Contact)	

Checks	**Date**
1. Obstructions in FOV	1.
2. Image Quality	2.
3. Field of View	3.
4.Wiring and Physical Damage	4.
5. Test Relays (Fault and Alarm)	5.
6. Test Analytics	6.
7. Create and or verify Audit	7.

Client Representative Name	**Date**
Test Witnessed By	

Hand Over Documents	
1. Copy of this form and associated Table	1.
2. FVA-VMS Audit Report	2.
3. Relay Test Results	3.
4. Analytic Test results	4.
4. Manuals	5.
5. Form to Comply with local codes and Standards	6.

Customer's Signature	Date
Commissioner's Signature	Date

Commissioning Table Checklist

Camera channel Number	IP address	MAC Address	Clear of all Obstructions	Camera image Quality	No physical Damage	Field Of View (FOV)	Content Fault (for smoke detection only)	Network Fault (if Applicable)	Power Loss	Analytics Functioning

Comments:

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