POWER GENERATION FACILITIES

SigniFire™

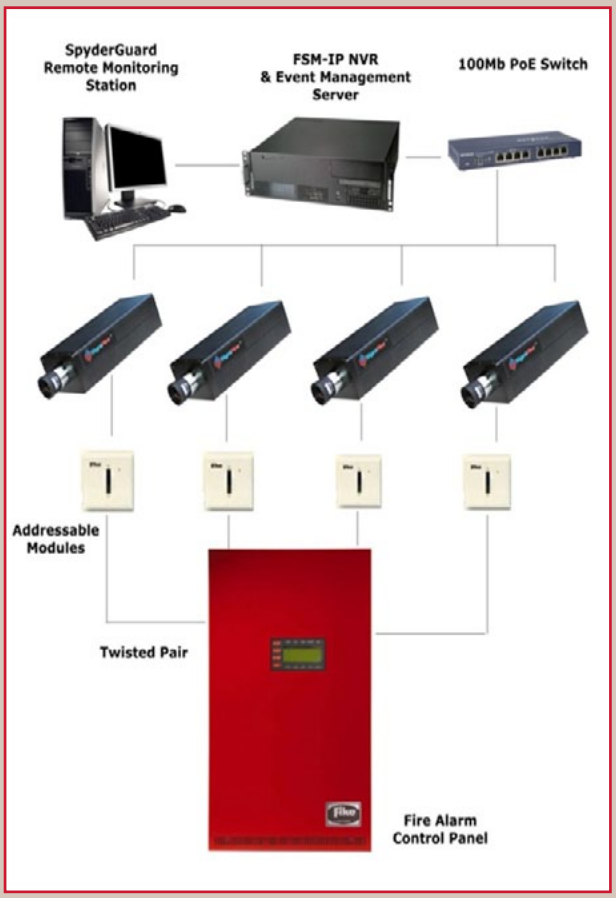
Fike®

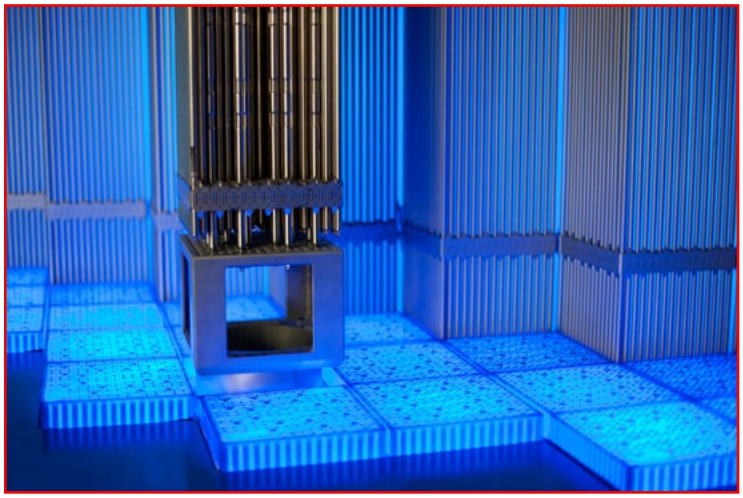
POWER GENERATION FACILITIES

Within coal, hydro and nuclear power plants, most fires originate in rotating equipment or electrical switchgear. Early detection and video verification through use of Signi*Fire*, can limit loss of valuable assets as well as avoid costly plant shutdowns. Signi*Fire* cameras have been installed in turbine halls, battery rooms, tripper rooms, compressor stations and over nuclear fuel rod pools.

CHALLENGING ENVIRONMENT

Power Generation facilities are typically large volume structures containing turbines and generators responsible for generating electricity. Many fires can start from bearings overheating or lube oil leaking. These fires may produce a smoke signature long before conventional heat detection would generate an alarm. Utilizing Signi*Fire* allows for detection at the earliest stages and mitigates the damage done to the plant.





WHY VIDEO FLAME AND SMOKE DETECTION?

Video smoke and flame detection has several advantages over traditional types of smoke detection.

- EARLIER DETECTION - Because the cameras 'see' the fire at the source, they detect earlier than traditional smoke detectors that require the smoke to reach the sensor.
- IMMEDIATE SITUATIONAL AWARENESS - Because the camera is a true network security camera, images can be viewed in real time at a guard station so an immediate suppression response can be initiated
- LESS DEVICES TO INSTALL- each Signi*Fire* camera can cover a large volume which will lead to fewer sensors causing reduced installation and maintenance costs

COSTS OF A TURBINE FIRE

Although the likelihood of a fire involving a turbine generator is low, several such fires have caused property damage upwards of $30 million, and forced plant outages exceeding six months. (Business damage could mean another $4-6 million in losses)* In two cases, permanent decommissioning of plants was necessary. The EPRI study concludes that based on a 30-year plant life there has been one fire in roughly 200 unit-years. This means that one out of seven turbine generators in operation will experience a fire. (0.5% probability)

**1985 Study of Turbine Generator Fires by the Electric Power Research Institute (EPRI)*

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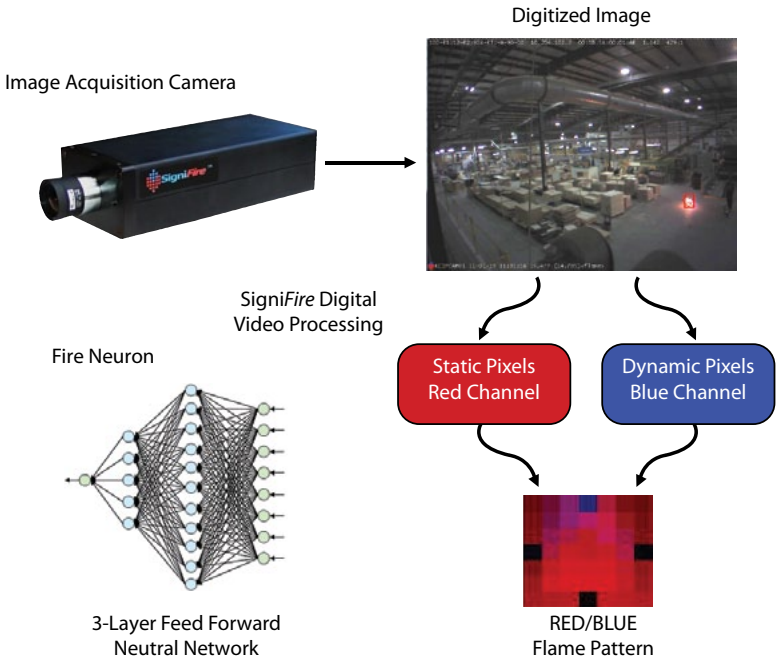
HOW DOES SIGNIFIRE WORK?

Artificial Intelligence using Video Analytics Software

- Scans 640 x 480 pixel images at a rate of 15 times a second
- 4.5 million data points analyzed by Texas Instruments Digital Signal Processor
- Software develops temporal patterns based on pixel DSP filters
- Patterns processed by Neural Network to identify flame and smoke
- Alarms communicated through dry contacts or IP based video management



WHICH FIRE PROTECTION SYSTEMS HAVE BEEN TRADITIONALLY USED IN CULTURAL PROPERTY PROTECTION?

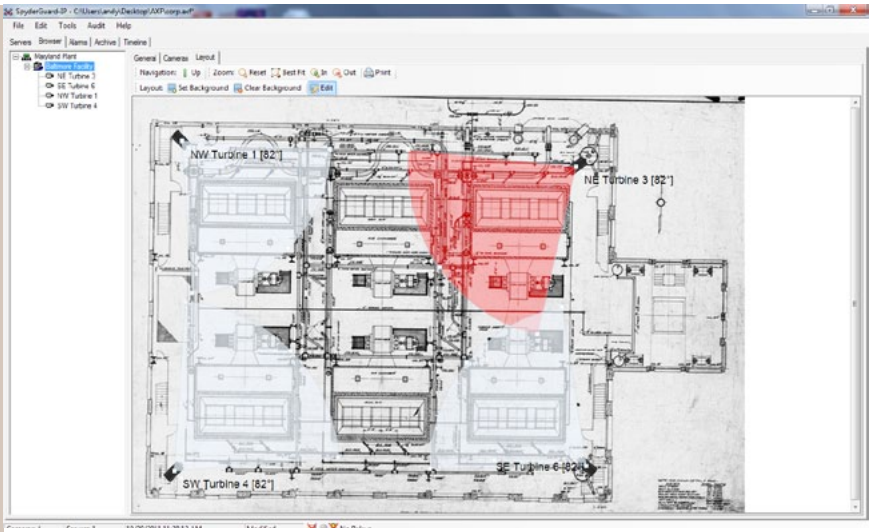
SYSTEM	COMMENTS
SPRINKLERS	Sprinklers are typically mandated by code and are triggered based on high temperature. They are designed to save the building shell but not the contents of a building
LINEAR HEAT DETECTORS	Linear heat can be used as a pre-action for sprinklers but are again activated by high temperature and will not detect fires at the early stage.
BEAM DETECTORS	Beam detectors are placed at ceiling level and can cause nuisance alarms based on blockage or misalignment. High ceilings can mean smoke stratification and diffusion issues.
SPOT DETECTORS	Spot detectors are usually either photo electric or ionization and are placed at the ceiling level which delays detection of smoke.
ASPIRATED SMOKE DETECTORS	Aspirated smoke detection (where smoke is drawn through a series of tubes back to a central detector) is normally faster than spot and beam detectors but still can have issues with smoke stratification and diffusion as well as smoke transport time and installation costs.

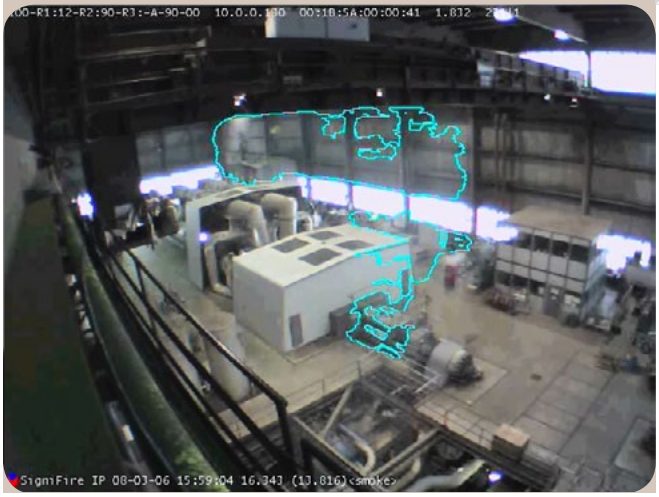
VIDEO SMOKE AND FLAME DETECTION PROVIDES A BETTER SOLUTION FOR POWER GENERATION FACILITIES THAN TRADITIONAL SMOKE DETECTION PRODUCTS.

POWER GENERATION FACILITIES

APPLICATIONS

- Turbine Decks
- Battery Halls
- Tripper Rooms
- Nuclear Fuel Rod Pools
- Compressor Stations
- Coal transfer
- Transformers and Switchgear





APPROVALS:

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THE TOTAL SOLUTION

Fike has long been known for being a leader in service, support and delivery in the fire protection industry. No matter what the concern, no matter what the time, we make it easy to reach a trained, knowledgeable Fike representative who will assist you quickly. Combine that with the most advanced technology available in fire alarm systems, competitively priced to meet all your application needs, and you have a total solution for all your fire alarm and fire protection needs.

FIKE GLOBAL MANUFACTURING, SALES AND SERVICE

AMERICAS

FIKE VIDEO IMAGE DETECTION
Sparks, MD, USA
Tel: +1-410-472-6590
Email: signifire@fike.com

FIKE CORPORATION
Blue Springs, MO, USA
Tel: +1-888-628-FIKE (3453)
Email: fike.firealarm@fike.com

FIKE LATINA LTDA (MERCOSUR)
Jundiai, Brazil
Tel: +55-11-4525-5900
Email: vendas@fike.com.br

CARIBBEAN, CENTRAL, SOUTH AMERICA
Houston, TX, USA
Tel: +1-281-895-8342
Email: ccsasales@fike.com

EUROPE

FIKE SAFETY TECHNOLOGY
Cwmbran, United Kingdom
Tel: +44 (0) 1633 865558
Email: fstinfo@fike.com

ASIA

FIKE ASIA PACIFIC SDN BHD
Selangor Darul Ehsan, Malaysia
Tel: +60-3-7859-1462
Email: fikeap@fike.com

MIDDLE EAST

FIKE CORPORATION DUBAI
Dubai, UAE
Tel: +1-816-229-3405
Email: fikedubai@fike.com

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