



Can I identify a flare with a performance issue: Alarm systems – Image Processing

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Summary

Video imagery or infra-red images are combined with image processing algorithms to provide continuous monitoring of the flare and issue alerts if the flare deviates from operator specified performance.

How it Works

Conventional video imaging technology is used to deliver live video streams of flares to provide real-time insights and alerts.

A range of metrics can be tracked including the size of the flare, smoke to flare ratio, and flare angle, enabling operators to make real-time decisions based upon pre-determined parameters.

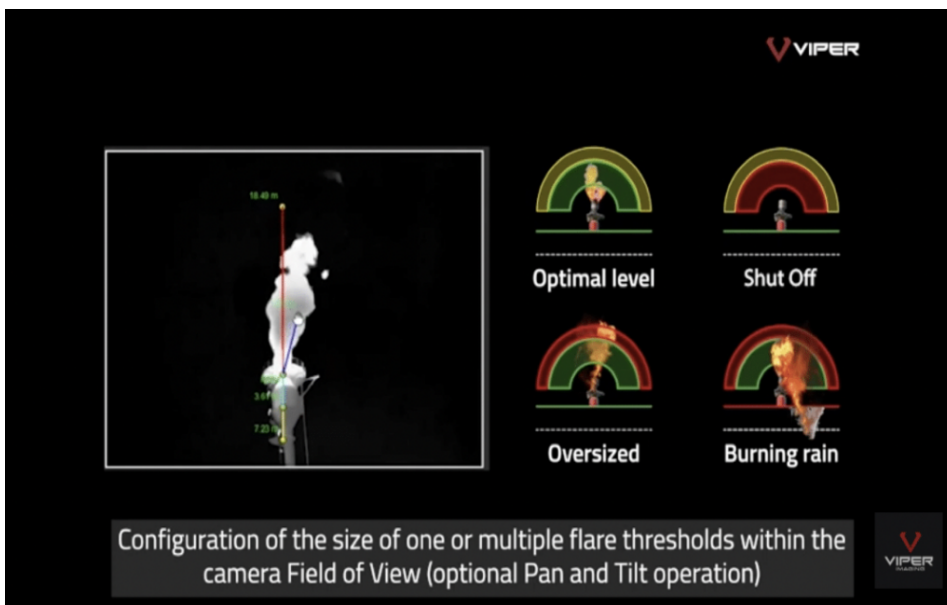
The emergence of these systems have been enabled by two technologies:

1. Edge computing – reducing the burden of exporting large amounts of data from the oil and gas facility. This is particularly useful for dispersed facilities.
2. Pre-trained Flare deep learning algorithms developed exclusively for flares that can be adapted and tuned to for different flare types, locations and flow rates

More sophisticated metrics related to gas volume, chemical composition and business impact are also entering the market.

Camera systems can be located in a range of positions, including at grade or centrally to support a number of flares simultaneously.

AI and edge computing systems can also combined data from other sources – including thermal imaging cameras.



Example of on-screen feedback of flare performance (image courtesy of Viper Imaging)

Advantages

- ✓ Video-imaging hardware is based upon robust, readily available and technology that is simple to operate and maintain
- ✓ Some camera systems can be positioned in high-hazard

areas

- ✔ System can be modified and tuned to suit specific flare parameters and operational conditions and learn what is considered normal for the specific deployment
- ✔ Can monitor or report multiple parameters simultaneously
- ✔ Instantaneous response time and variable alarm thresholds
- ✔ Reduce staff hours observing flares

Limitations

- ✘ Does not monitor methane directly – but infers poor flare performance from observable data such as soot which may not be directly linked to greenhouse gas emissions
- ✘ Requires access to power and data networks
- ✘ May be impacted by, or struggle to differentiate the impact of adverse environmental conditions (strong winds, ice, snow)

Go Deeper

- [Vendor website: Foghorn](#)
- [Vendor website: Viper Imaging](#)
- [Vendor website: Agora](#)

Case study

Awaiting copyright approval

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